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THE
YOUNG NATURALIST :

AN ILLUSTRATED MAGAZINE

ON

NATURAL HISTORY.

CONDUCTED BY

JOHN E. ROBSON, & S. L. MOSLEY,

WEST HARTLEPOOL.

HUDDERSFIELD.

VOL. II.

London :

JOHN KEMPSTER & Co., BOLT COURT, 151, FLEET STREET, E.C.

TO
FREDERICK BOND, ESQ.,

F.Z.S., Memb. Ent. Soc. London, &c., &c.

THE SECOND VOLUME OF THE
YOUNG NATURALIST

IS RESPECTFULLY DEDICATED,

As a mark of sincere esteem, and in acknowledgement of much valuable assistance most willingly rendered, not to ourselves only, but to all to whom his extensive collections, so wonderfully rich in varieties, and his vast stores of knowledge, are so freely opened.

TO

FREDERICK BOND, Esq.,

21, Abchurch Lane, London, E.C. 4.



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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 54.

NOVEMBER 6TH, 1880.

VOL. 2.

MAGAZINE CLUBS.

↑ IT is with feelings of considerable
↑ pleasure that we greet our readers in the first number of our second volume. We trust that all our old subscribers will continue to give us their support, and that their ranks may be considerably swollen as time goes on. We could not begin our New Volume without a word of greeting, but will not take up space with further remarks.

In No. 49, in the article on Libraries, we pointed out how three or four Naturalists, by each subscribing for a different Magazine, and exchanging, would be able to read so many more periodicals at the same cost, if all residing in the same town, or only for the postage extra if they resided apart. Our attention has been called to the difficulty such readers have in getting acquainted with each other, and also that distance is no object if the Magazines have to be sent by post, and lastly that a larger club than we named would produce correspondingly larger results, while if the readers were more in number than the periodicals taken, the cost could be reduced in

proportion. It has therefore been suggested that we should get up a Magazine Club among our own readers, on a larger scale than would be practicable privately. We think the suggestion a good one, and so well calculated to further the aims of *The Young Naturalist* that we shall be pleased if we can put the idea into practice.

There are several monthly and other publications, such as "The Naturalist," "The Scottish Naturalist," "The Midland Naturalist," &c., whose chief circulation is intended to be within a limited area, and which cater especially for readers within these limits. These Magazines nevertheless, often contain excellent articles of general interest, that from this limited circulation are almost lost. Such articles as we refer to would be gladly perused by everyone, but few care (even if they can afford it) to take in all the papers published on our subject. They would willingly read them, but scarcely care to buy. Besides those published in this country, there are others in our own language published in Canada and the United States, while others in German, French, &c.,

are issued on the Continent. It appears to us that it would not be difficult to arrange a Club in such a way that its members might have the perusal of all periodicals they cared to see, at a cost scarcely exceeding the subscription for one of them. The average cost of these Magazines is five to six shillings a-year. Ten of them would cost about fifty shillings. Twenty members at a subscription of half-a-crown would raise the amount. In addition to this, there would be the postage from one member to another, say fivepence monthly. This would be the entire cost. At the end of the year, the stock could be sold for what it would bring, and the amount raised, distributed, or carried to next year's account, to reduce the subscription, or increase the number of papers or magazines at the end of the year. If in good enough condition they might be bound up to form the nucleus of a reference library for the use of the members. If there were fewer subscribers, the number of periodicals could be decreased, or the subscriptions raised in amount. We think however that half-a-crown should be enough. Will such of our readers as are disposed to join such a club please to communicate with us, stating their ideas about it. They will please not make any remittance at present until we see whether enough are inclined to join, to make it worth while, that we should undertake the labor the plan will entail.

SCALE OF CHARGES FOR ADVERTISEMENTS.

	1 Insertion.	3 Insertions.	13 Insertions.
1 Page.	7/6	20/-	80/-
$\frac{1}{2}$ "	4/-	11/6	45/-
$\frac{3}{4}$ "	3/-	7/6	30/-
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TO CORRESPONDENTS.

E. E. G., Sittingbourne.—Thanks for pupa of parasites from *N. Ziczac*; but we do not think them Dipterous. We are not aware that the larvæ of this order ever spin cocoons. Yours are evidently a small *Hymenoptera*, probably a *Microgaster*. The answer to your question is just what we are trying to find out. No doubt some parasites confine their attacks to one particular species of larva, but others attack more than one. In the course of time we hope to learn the species that are attacked by each different parasite, both Dipterous and Hymenopterous. Our readers are helping us greatly in the quest, which no single Entomologist could accomplish. We have not noticed the red parasite you speak of attached to the imago. Is it not an *Acarus*?

Several subscribers for the New Volume, who have not had them before, are ordering colored plates. We would advise that, except the Weekly Edition be preferred, those who take colored plates should have the Monthly Parts, as the plates travel safer in them than in a thin Weekly Number.

We have still a large quantity of odd back numbers, and parties who have favoured us with papers during the past year can, in most cases, have copies for distribution among their friends by paying postage (1d. per dozen).

Subscriptions for Vol. 2 now due. With 12 plain plates, 6/-, or with the same colored by hand, 8/-. Monthly Parts in colored wrapper, on same terms. "

The usual monthly plate due with this number is deferred for a week, for unavoidable reasons.

NOTES, CAPTURES, &C.,

It might be interesting to some of the readers of the "Young Naturalist" to hear that on the 11th of last month, whilst out shooting in a clover field near here, I captured a very fair specimen of the Crimson Speckled Moth (*Deiopeia pulchella*).—E. Du Buisson, Breinton Court, Nr. Hereford, Oct. 23, 1880.

EXCHANGE.

I have between 300 and 400 duplicate Lepidoptera, and will endeavour to help any beginners who like to send boxes with a marked list and return postage.—R. J. ATTYE, c/o. Rev. F. Vernon, Storrington, Sussex.

BRITISH BIRDS; THEIR
NESTS AND EGGS.

By S. L. MOSLEY.

DESCRIPTION OF PARTS.

Birds are so well known that it need not be feared that any person will mistake any other animal for a bird, or a bird for any other animal, but there are certain parts of a bird which are known by technical terms which would be unintelligible to the general reader if not explained. The beak is composed of two parts, called the upper and lower *mandibles*, the upper one being frequently, especially in the birds of prey, clothed at the base with a soft leathery substance called the *cere*, in which the nostrils are placed. In giving the color of eyes the *iris* is always intended being the colored portion, which surrounds the black central *pupil*. The wing bone is composed of three parts, joined together; the first, or tip joint, carries the large pinion feathers, usually ten in number, and called the *primaries*. The second joint carries a series of shorter and

softer feathers, called the *secondaries*, which vary in different species. Between these and the body is a group of feathers which varies greatly in size in different species, called the *tertiaries*. The primaries and secondaries are covered at the base by, first the *greater wing covets*, and then by the *lesser wing covets*, the latter being laid in regular scale-like fashion along the bones of the wing. Under the wing is a series of feathers called the *under wing covets*. At the tip of the wing is a kind of small thumb, or finger, usually called the *spurious wing*, and has a few stiff feathers, probably to protect the bases of the large quill feathers. The tail is generally composed of twelve feathers, the base being clothed above and below by the *upper* and *under-tail covets*. The legs will be described as *thigh* (above the knee), *tarsus* (below the knee), *toes*, and *claws*, the latter being the horny appendages at the extremities of the toes, and generally called *talons* in birds of prey. By the above explanations it is hoped the reader will be able to understand the few technicalities that will be made use of during the progress of this work.

Birds were divided by the late Mr. Yarrell into five great orders, according to their different modes of life, and as these Orders seem to be natural divisions they will be taken as the ground-work of our classification. They are as follows:—

- I. RAPTORES.....Birds of prey.
- II. INSESSORES..... Perchers.
- III. RASORESScratchers.
- IV. GALLATORES ...Waders.
- V. NATATORESSwimmers.

Each of these Orders are again subdivided into families, the families into genera, and the genera into species. The characters of these will be described in turn during the progress of the work,

Order I.—Raptores

RAPTORES, *Raptor* (Lat.), robber. From their habit of preying upon other animals,

The members of this order are characterized by having the lower mandible short and blunt, and the upper one pointed, and bend downward over the end of the lower one. The claws are long and powerful, and much incurved. The birds are very strong on the wing, and live upon the flesh of other animals, which they capture mostly by chase. They live singly, or in pairs, two pairs seldom breeding near each other. The female is generally larger than the male, and the eggs are often of a rounded form, being nearly of equal thickness at both ends. The young birds are at first clothed with a soft down, and remain in the nest until they are able to fly.

FAMILY I.—FALCONIDÆ. Leach.

FALCONIDÆ, *Falco*, the Latin name for a Falcon. The termination of this word, and of the names of other families which are to follow, means that the birds in that particular family bear one general family likeness, as if they were descendants from a common ancestor.

The members of this family vary greatly in size, as will be seen from the measurements of the different birds. The wing is large, and the pinion feathers hard, and adapted for quick strong flight. The legs (with two exceptions) are not clothed with feathers below the knee joint. They have three toes before and one behind, the hind one being as long as the outer ones. The nest is placed either on the ledge of some cliff, or in a tree, is very slightly put together, and the eggs are white or grey, with or without more or less red or brown spots or blotches.

Genus 1.—*Haliaetus*, Selby.

HALIÆTUS.—*Haliætos* (Gr.) Marine, *aëtos* (gr.) an eagle.

The only representative of this genus in Britain is large, the beak large and powerful, and the legs and feet clothed in front with large rough scales. It is separated from the next genus, because it seems, from its habits, to come nearer to the vultures.

I. WHITE-TAILED EAGLE.

Haliaëtus albicilla, Gmel.

Sea Eagle (America).

Erne (Gaelic).

Hafs örn (Sweden).

Goastern (Lapland).

ALBICILLA.—*Albus* (L.) white, *cilla* (L.) a tail.

Size.—An average adult male of this fine species measures rather under three feet from bill to tip of tail, and about seven feet in expanse of wings. Young birds are under this measurement, and adult females are even larger.

Plumage.—Few birds of prey differ more than this one in the plumage according to their age. THE ADULT MALE has the bill straw color; cere yellow; eye bright yellow. The whole of the head and neck is covered with long pointed feathers, whitish brown in color, with darker shafts; the back and breast are brown, each feather margined with paler color. The large primary wing feathers are black, with white shafts. The secondaries are paler. The tail, which is rather rounded at the extremity, is white, except at the base of the feathers which is brown. The legs and feet are pale yellow, clothed in front with large coarse scales; the claws are large and black. *The tarsi are not covered with feathers*, as in the next species, at any period of the bird's existence. IMMATURE birds vary according to their age, but about the second year the bill is bluish black, paler towards the base; cere yellow. The eye at this stage is chestnut brown. The head and neck is dull brown, the base of all the feathers being whitish. The breast has generally a few white feathers, which decrease in number as the bird advances in age. The rest of the body and tail is brown, the tail becoming whiter as the bird advances towards maturity. THE YOUNG are at first covered with a whitish or "murrey colored down" (Montague). They remain in the nest about two months before they are able to fly, which event is generally accomplished by the middle of August. VARIETIES have occurred pure

white; one is recorded as having been killed in Sutherlandshire, and another, probably from the same nest, was seen at the same time. Meyer records a variety which was in the collection of the Zoological Society. It had the base of all the feathers azure blue, which gave to the bird a very peculiar tint, being more conspicuous when it raised its feathers as in anger. This specimen, Mr. Bond informs us, is now in the Norwich Museum.

Note.—The note is described as a harsh and loud scream, uttered many times in succession, like the words—Kooluk, klook.

Flight.—The flight of the white-tailed eagle is somewhat heavy, flying along under the edge of some high sea cliff, and keeping a sharp look out for its prey. When travelling from one place to another its wings flap with a regular beat, while at other times it will ascend to a prodigious height, and soar in circles, two eagles not unfrequently performing their evolutions in company, and engaging in play or combat while at this great height. This bird very seldom alights on level ground, and when it does so it has some difficulty in rising again, flapping along the ground for some distance before it can acquire sufficient impetus to raise itself from the surface.

Food.—In its food this bird seems to approach somewhat to the Osprey, for fish, which it captures for itself, forms a moderate portion of its diet. Some writers state that it will not unfrequently attack the Osprey, and rob it of its acquired prey, and that sometimes the latter, in places where it is common, will unite to attack and drive away the larger intruder. Occasionally a white-eagle will seize a fish too large for it to lift from the water, and in such a case the bird will spread its wings, and allow the wind to blow it with its prey to the shore. If, however, the wind is blowing off shore the bird is sometimes drowned, as it cannot liberate its claws. Other birds of prey have done the same. A vulture has been observed to do a similar thing on the body of a dead Indian on

a river near Calcutta, Mr. Bond thinks this may be an accidental occurrence, and not an acquired habit. The white-tailed eagle will also prey upon sea birds, guillemots, &c., as well as on land animals. It will also devour carrion, and gorge itself after the manner of the vultures, when it will sit upon a carcase, or something adjoining, and commence with drooping wings, after the manner of these birds. In the Hebrides, and other portions of Scotland, this bird in former years was very troublesome on account of the destruction it caused to sheep and other farm stock, and rewards were accordingly offered for its destruction. IN CONFINEMENT it may be fed upon flesh meat and fish, and should have plenty of room, and a pool of water.

Habitat.—This bird is more often met with than the Golden Eagle, frequently occurring along the northern shores of Scotland, the outer islands, and the north of Ireland. It is confined to the rocky parts of the coast, and immature birds are sometimes met with at such places as Flambro' Head, the Cornwall coast, or the rabbit warrens of Norfolk and Suffolk. In fact immature birds have occurred in almost every southern county of England. ABROAD it is found in many parts of Europe, more commonly in the north, especially in Iceland and northern Russia. This species is also met with in Greenland, Spain, Sicily, Greece, in the Alutian Islands, Japan, and Manchuria. It breeds in Albania and in Egypt.

The Nest is large, and very roughly put together, being composed of sticks, seaweed, or heather. A slight depression is made in the centre, which is covered with some softer material, such as grass, wool, or feathers. It is generally placed on the ledge of a cliff, facing the sea, but sometimes in a situation near some inland lake. Sometimes the same site is used several years in succession.

Eggs.—Two eggs are laid, sometimes only one. In color they are white, or greyish-white, with or without a few rust-colored stains. Sometimes the spots are more

numerous, and either dispersed equally over the egg, or confined to the large end. They are never so much spotted or marked as those of the Golden Eagle.

HEDERA HELIX.

(The Ivy.)

By J. P. SOUTTER, Bishop Auckland.

"How busily thou weav'st thy emerald vest,
Unfading climber, round the fabrics frail,
Of man's uprearing; still with ceaseless toil,
Striving to hide time's envious ravages,
And bind together the dissolving ruin!
Thou lendest beauty to decay and death,
And throw'st a loveliness round loveless things."

Few, if any, plants are more widely distributed, or better known, than the ivy. The dweller in the country is familiar with it as clothing the leafless trees in winter with perennial verdure, and the denizen of the town knows it as mantling with its sombre drapery the ancient church or ruined castle, round which the busy habitations of man has clustered, or he sees it planted and trained to cover blank walls or unsightly corners, for it is one of the most suitable plants for town culture. Its bright, glossy, dark green leaves, seem as if varnished on the upper surface, so as to make them impervious to the dust and smoke of cities, where their refreshingly cool appearance forms an intensely grateful change from the staring glare of bricks and mortar. Seen under such artificial conditions clinging closely to the wall, and producing only a mass of evergreen leaves, the ivy is very different in appearance to the form it assumes when crowning a precipitous cliff, where, after having clambered up its rugged face, and thrown out pendant branches which hang down in graceful festoons, swaying in the breeze, and forming a leafy screen to the entrance of cool grotto, or shady cave, it then rises to the dignity of a woody shrub, bearing a profusion of flowers and fruit. Under these varied forms, it was formerly believed, and is still upheld by some, to be two distinct plants, called the creeping or climbing ivy,

and the fruiting or berried ivy. So one can understand the perplexity of the worthy Christian man who challenged his pastor to explain the text, from which he had preached, "Every tree is known by its fruit;" and the poor man, having never seen fruit on the ivy, and being no botanist, felt his faith sorely tried to account for the discrepancy. The ivy has, however, two distinctly different modes of perpetuating its species, viz., by extensively spreading and rooting stems, and by producing seeds. In the barren state the stems creep along the surface of the ground, giving off on the underside at every joint slender rootlets, which penetrate the soil and take root so freely that the shortest length, if transplanted, will live and thrive as an independent plant. Under such conditions no flowers are needed and no flowers are produced. In this state it is extremely suitable for forming borders to walks in dark corners or under the shade of trees, where it will not require to be trodden on, and it will prove fully as effective as a foil to a gravel path, and be far less trouble than a grass edging. In this form it will cover walls or trees to any height, if periodically trimmed and the pendant or straggling branches cut off. It clings closely to the wall, rock, or tree, by means of its numerous rootlets, which under such circumstances do not perform the functions of true roots, that is to absorb nutriment from the soil, but they simply act the part of mechanical holdfasts, and have been aptly called root-tendrils. They adhere so firmly that the young shoots will often snap and break before they can be detached. If a climbing sprig of ivy be examined these adventitious roots will be seen to be beautifully covered with hairs. If there are crevices in the surface they penetrate them, but if the wall is smooth they assume the form of small suckers, which cling most tenaciously to their support. But although the ivy by closely investing and surrounding other plants, such as trees and thus seems to grow upon them, it is not a true parasite deriving its nourish-

ment from their tissues, for it honestly provides its own nutriment from the soil, which can be demonstrated by cutting a stem of ivy close to the ground when the ivy plant will soon die notwithstanding its innumerable roots, apparently penetrating its host. Although very picturesque, especially in winter, the ivy is also very injurious when permitted to climb the trees of a wood, because by constricting their stems it prevents the increase of their diameter, which is formed by annual layers of wood, and it thus strangles the trees by stopping the flow of the sap.

(To be continued.)

DIFFICULTIES FOR BEGINNERS.

By JOHN E. ROBSON.

No. 2.

CUCULLIA UMBRATICA AND CHAMOMILLÆ.

While all our British Sharks are rather difficult for beginners to separate, the pair we now refer to are more likely to be met with than any others, except perhaps *Verbasci*, which though common enough in some places in the south, is not nearly so widely distributed as either of these. To begin with, the Sharks may be known by the very distinct crest or hood on the thorax, and by the long narrow, pointed fore-wings. The pair now under consideration, have the fore-wings grey, without any transverse markings, but with numerous darker lines running longitudinally. If you take your own specimens and label them as we have so often advised, all those taken before June are certain to be *Chamomilla*, and if you have got one or two specimens correctly named, you will have no more trouble. In June or July *Umbratica* may be taken, and we have taken *Chamomilla* on the wing the same night, so that it is only the early specimens that you can be sure are the scarce species. If you have neglected to label your insects you must compare them carefully, and you will find that *Chamomilla* is smaller and

browner than *Umbratica*, and has a number of dark, almost black streaks, shading the middle of the fore-wing. *Umbratica* on the other hand is larger and greyer, and the darker streaks are never so deep in hue as those of the other species. While these general directions may serve to separate them when you have the species to compare, Mr. Newman points out a slight difference in them that will enable you to name either, without the other to compare it with. The nerves or wing rays of both species are darker than the ground color, and in *Chamomilla* this dark line is continued through the fringe, while in *Umbratica* it stops before the fringe, which is uniformly grey. This characteristic is not shown in the otherwise very excellent figure of *Chamomilla* in Mr. Newman's work, but so far as our observation goes it may be invariably depended on. We notice also in nearly all our *Umbratica*, a crescent-shaped mark or lunule near the costa of the hind wing, which we have never seen in *Chamomilla*. This is shown in Mr. Newman's figure. Both these species fly freely to flowers, or may be taken at rest on palings, when their long narrow forewings, cover the hind wings, and are folded close to the sides, making them resemble a morsel of wood that has been exposed to the weather.

The larvæ differ very greatly, that of *Umbratica* being rough and dirty looking with very indistinct traces of orange lines, while that of *Chamomilla* is pale green or brown, with wavy lines of the same color but darker, and bordered with a still darker hue. The larva of *Umbratica* feeds on various species of Sow Thistle (*Sonchus*), and will eat lettuce in confinement. During the day it hides under the leaves. The larva of *Chamomilla* feeds on Wild Chamomile (*Pyrethrum*), sometimes called Dog Daisy, and is generally found on either *inodorum*, or *maritimum*. They do not hide during the day, but feed in the brightest sunshine, and seem to prefer the flowers. They are often found in great numbers in very unlikely places.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 55.

NOVEMBER 13TH, 1880.

VOL. 2.

EXCHANGE.

SOME people do not believe in Exchange. They think the Collector will learn more by taking his own specimens, and no doubt that is right enough if every collector was able to go from home to collect whenever he wanted to make an addition to his cabinet. But there are a large number of Naturalists who have neither time nor means to go much from home, and Exchange is to them the only means of enlarging their collections. We are quite aware of the value of purely local museums, either public or private, but our insular fauna is so limited that almost every one desires to obtain the whole of the British species in whatever department of Natural History he is collecting. To the Botanist, the Entomologist, the Conchologist, &c., whose specimens are neither large nor heavy, the facilities offered by our postal service have been so great, that even before the reduction in the parcels postage, Exchanges were continually being effected to the advantage of both parties, except, when from careless packing or rough usage they were

damaged or destroyed in transit. Botanists have for many years had an "Exchange Club," which has rendered good service by the distribution of large numbers of rare and local plants. More recently a second Botanical Exchange Club has been begun in connection with Science Gossip, which has also proved of great value to its members. Many years ago, an Entomological Exchange Club was commenced, and the present writer for one, obtained through it many species he had never seen before, and might have been a long time in obtaining through ordinary means. Why this club was discontinued we never knew. The principal of all these clubs is the same. Members residing where any rare or local species can be obtained endeavour to procure a larger supply than they need for themselves. These duplicates are sent to a central depot, along with lists of what each contributor desires in return. The whole of the specimens are then shared out. The members sending the largest and best parcels are served first, and the others in turn, so that each person obtains a fair return for their consignments. We announced

at the commencement of the *Young Naturalist*, that the establishment of such a Club would be one of our aims. Our idea then was perhaps too extensive to be carried into practice, for we did not propose to confine its operations to one branch, but to receive and send out specimens of various things—to receive shells from one who wanted eggs, or eggs from one who wanted Lepidoptera. Perhaps it was this extensiveness that made members shy of communicating with us on the subject, for we have since learned that some of our readers (chiefly Lepidopterists) not only desired to join such a club, but have actually collected long series of various local species for the purpose of sending them in. It appearing then that such a club might perhaps be established for the exchange of Lepidoptera, and possibly extended afterwards, we are willing to do our part towards giving it a trial. If there are only enough who join it, it cannot fail to be successful. The advantages we see are, that by the institution of such a club, its members will not exchange as it were with single individuals, but with the whole of the members at once. This will enable them first, to dispose of a larger number of their own duplicates, and more particularly of one species, and second to receive a larger number of species. Besides it will enable them to obtain species that they could not otherwise obtain for their insects. For instance A has a certain species to spare, and wants another species that B has to spare, but B has

no need for A's duplicates, and therefore will not exchange with him. The introduction of a third party however makes the matter easy. C requires A's duplicates, and can give B what he wants. B requires C's duplicates, and can supply A with his desiderata, while A is glad to let his spare specimens go to C in exchange for the insects belonging to B which he could not obtain direct. If D, E, F, and other letters of the alphabet are introduced, so much better choice is given to the whole of them. The members of such a club, however, must do the best they can for the other members, and not want to give all common things, and receive rarities in return. If they will endeavour to act in the interest of the club it will be a success for every one concerned. Will those of our readers who are willing to join in the matter communicate with us at once, and state what species, and how many of each they can spare, and what they desire in return. When all the lists are in we will know what can be done for this season. After the first exchanges are accomplished, lists must again be sent in, and we will be able to inform the members what species are needed for next year, then they will know what to try for during next season. There will be an additional advantage for those who join the Club, as several local insects are already placed at our disposal by Entomologists whose collections are so nearly complete that they do not care for return for their duplicates, but prefer to help

on others, and we have no doubt many others will also be contributed as the scheme gets better known.

Of course this suggested Exchange Club does not alter the arrangement by which our readers can have the use of our columns for their own announcements, and we should be glad to see this made more use of. Some, no doubt, are too anxious to *bargain* in exchanging, wanting to have as good as they give, *and better*. Neither through a club, nor by private exchange can both parties have the advantage, except that it is always an advantage to get what you require and to help others. Never mind the money value of your insects; no gentleman ever thinks of such a thing. Give liberally, and you will always be well treated in return.

SPECIAL NOTICE.

Our friends have had great trouble hitherto in procuring the YOUNG NATURALIST through a Bookseller: the firm who supplied the trade at first being too far from the centre for collectors to go to Walworth for odd copies of a penny paper. We now have pleasure to announce that we have arranged with

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who will in future supply the trade; and we trust our readers will have no further difficulty in procuring copies through a local Bookseller.

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TO CORRESPONDENTS.

Several persons have sent in their names as desirous of joining our Magazine Club, and one has offered to supply the *Canadian Entomologist*. We require a few more names before we can say that the club will be begun.

NOTES, CAPTURES, &C.,

CUCULLIA UMBRATICA and CHAMOMILLA.

I always understood that the distinguishing character between imagos of these species (*Young Nat. Vol. II., p. 7.*) was the transverse black collar-like streak in front of the thorax of *Chamomilla*, which is wanting in its near relative.—G. T. PORRITT.

EXCHANGE.

Pupa of *S. Populi*. DESIDERATA: Butterflies.—T. TRITSCHLER, Alliance Street, Hartlepool.

DUPLICATES: *Ocellatus*, *Filix*, *Miniata*, *Gonostigma*, *Batis*, *Diluta*, *N. rubi*, *Janthina*, *Diffinis*, *Affinis*, *Silago*, *Biundularia*, *Sylvata*, *Albicillata*, *Populata*, &c. DESIDERATA: *Quadra*, pupæ of *Machaon* and *Carpini*.—E. F. NICHOLLS, 3 Court, 6 House, Jordan Well, Coventry.

A PAPER ON APIS MELLIFICA.

By the Rev. G. C. B. MADDEN, Huddersfield.

In fulfilment of a promise to one of the Editors of the *Young Naturalist* I take up my pen to write a paper on the Honey Bee, and hope so to interest Young Naturalists that

they may be induced to keep bees for themselves, and thus attain a practical knowledge of all their wonders. Let us suppose it is in the month of June, a bright sun shining, and the busy bees pouring in and out, in an untiring stream from their hives. At one hive we notice the bees are hardly working at all, but hanging outside in large clusters, upon applying an ear to the hive itself we can hear a piping sound, this tells us the hive will swarm. Let us sit down and watch it, all is calm, the bees seem as if they were going to sleep, when all of a sudden those outside the hive became evidently agitated, run hither and thither, the temperature of the hive rapidly rises. From the entrance a wild stream of bees pour, in an unceasing current, and taking wing, whirl hither and thither in the air. Watch them closely, and they will be seen gradually to converge to some bough of a neighbouring bush, until, in a short time, they have formed themselves into a dark bundle of living insects, the one clinging to the other by means of their legs. This is called a swarm of bees, and it has taken place because the hive was too small for the rapidly increasing population. The old queen has flown with the swarm, leaving the old hive rather bare of bees, but ere the day is over, a large number of young bees will hatch out, and in a few days the normal number will be again reached, and often again become so great that a second, and even a third, swarm will take place, but this is not to be denied. I will now follow the fortunes of the swarm, and thus tell you the economy of these wondrous little things. The swarm being safely hived, the Bees at once form themselves into a large cluster from the top of the hive, from this cluster threads of bees hang in festoons to different points. These Bees are beginning the important operation of wax-making. They cluster for the purpose of heat, else they could not work the wax. Wax is produced inside the Bee from honey, and exudes in little plates from underneath the abdomen,

it is seized by the Bee, kneaded in its mandibles, and then by it placed roughly along the line from which the first comb will hang. Bee after bee deposits its load of wax, and gradually it is formed into foundations of cells. This foundation is added to hour by hour with marvellous rapidity, until in 24 hours I have taken away a piece of partially formed comb about the size of my hand. Certain others of the bees are busy collecting honey, pollen, and propolis for food, &c., all this time, and the Queen is busy at her life work, ovipositing, even in the cells only half formed.

(To be continued.)

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by

S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

15, SELENE, W. V. Pl. 10, Fig. 1.

The Small Pearl-bordered Fritillary.

"SELENE, W. V., *Selene*, the name for Luna, the Moon."—A. L.

Imago.—Pl. 10, Fig. 1, Upper and underside. Fulvous spotted and marked with black. Underside. Fore wing similar; a few light spots along the hind margin, and two brown marks near the tip. Hind wing pale yellow, with several brown marks. A row of silver spots along the hind margin, and several other silver spots about the centre and base of the wing.

Larva.—We know nothing of the larva of this species, but it is said to be black, with grey markings, the spines being rather orange colored at the base, with black tips. Head and legs black, claspers dull red.

Pupa.—Quite unknown to us.

Food Plants.—Dog Violet (*Viola canina*) is the only food named by the various authors to which we have access, but all English writers that we know of have copied from Continental authorities.



Argynnis Selene, (1).
Melitæa Cinxia, (2).
 " *Artemis*, (3).
 " *Athalia*, (4).



Times of Appearance.—The butterfly emerges early in June, or perhaps in the last week of May. The larvæ appear in July and August, and hybernate quite small, feeding up in spring. Like the last species, this insect is said by Kirby and Stainton to appear also in the Autumn: Kirby giving the dates of its occurrence as *from* May to August; Stainton giving May and *sometimes* August. We cannot find any record of a British specimen appearing in the Autumn, and have no knowledge of its habits on the Continent. We should be glad to hear from any of our readers who take the species whether it ever occurs in the Autumn. We would especially like to hear from Continental collectors, or those in the South of England, where it is most likely to be double brooded, if at all. It seems strange that there should be any doubt about so common a species.

Habitat.—*Selene* is a wood insect like most others of the genus, and is common in the outskirts and ridings of our larger woods. It is also recorded from nearly every county in Scotland. In Europe it is widely spread, though it appears to be wanting in the more southerly countries—Spain, Sardinia, Greece, &c. It is also recorded from several parts of Asia, bordering on Europe, and extends to the provinces of the Amoor.

Variation.—Though the largest proportion of the specimens obtained are of very uniform style of marking, a great many curious varieties are known, and several are named. Most of the specimens we have seen vary in the diminution or enlargement of the black spots. In some they are much reduced in size and number, while in others they are enlarged until they coalesce, and sometimes little more than a row of fulvous spots remains at the hind margin to show the ground color of the wings. A very beautiful variety in Mr. Sydney Webb's collection is figured in Mr. Mosley's "Illustrations of Varieties of British Lepidoptera," Argynnis, Plate 5, Fig. 4 and 5. The forewing of this

specimen has two rows of small spots at the hind margin, and only two others on the costa behind the center, while the hind wing is all black at the base, and the wing rays are as black streaks to the margin. It is as if nearly all the black of the forewing had been transferred to the hind wing. This specimen also varies much on the underside, which is streaked with red, yellow, and silver, in lieu of the usual spots. On the same plate are figured other three specimens, one with pale and another with darker drab ground color, while the third is a pale yellow. These are rather aberrations than what are properly called varieties. The form called *Hela*, Staud., is smaller and darker than the type, and occurs in the extreme North of Europe. Other four varieties are named by Kirby, viz., *Thalia*, Esp., *Pules*, Bergst., *Murphisa*, Herbst., and *Rinaldus*, Herbst. We know nothing whatever about any of them, and neither description nor habitat is given in Kirby's catalogue of them.

Parasites.—None known to us.

ENTOMOLOGY FOR BEGINNERS.

By C. S. GREGSON.

NOVEMBER.

"Work wins."

The season of 1880 is drawing to a close, and it will now be a source of pleasure or regret to look back at the season's work, for just as we have worked or idled away our time, so we shall have a stock of nice insects or empty boxes to look at. If we have been lazy last month, we may, by hard work on suitable nights this month, do much to regain lost opportunities, and if we did not work hard last January, read what I said in No. 10 of the *Young Naturalist*, page 76, and go to work at once to make up for lost time. Sugar-ing on mild nights and visiting ivy bloom, will be found productive, especially the latter, and when out just turn your lantern on the

birchclough you are passing on your way home, and take those beautiful and fragile *Brumata*, which are hanging about the tips of the birch branches, and look closely for the females, which being semi-apterous are often overlooked by careless workers; they are most commonly found about trunks of trees, or on low plants, near the birches.

Having exhausted this amusing and successful plan of obtaining the autumn moths within your collecting track, then turn to the street lamps on your way home, and doubtless you will be amply repaid by finding the way very much shortened as your boxes become filled and in the morning when you look over your night's captures, I have little doubt you will say with me, work wins.

HEDERA HELIX.

(The Ivy.)

By J. P. SOUTTER, Bishop Auckland.

Concluded from Page 6.

When the ivy reaches the top of a tree, or the summit of a wall, finding it cannot further extend its area it rises in the air, assumes a compact bushlike habit, the leaves lose their familiar lobed, or angled shape, becoming entire and lanceolate in outline. It now produces a profusion of greenish flowers, followed by abundance of fruit, so that the seeds falling on the ground, or transported by birds, may thereby ensure a succession of plants. The ivy is the latest flowering of all our British plants, blooming through October and November, and although the flowers are not showy in individually, and only faintly perfumed, they are so numerous, and so prolific of honey, as to be very attractive to insects. On a bright sunny October day they fairly swarm with wasps, &c., and furnish a supply of insect food when such is scarce. At night they are much frequented by honey sucking Lepidoptera, and Ivy flowers in the Autumn take the place of Willow blossom in Spring, and collectors who visit

them seldom fail to reap a rich harvest. The flowers are arranged in the peculiar manner called an umbel, where we have a number of flower stalks radiating from a common centre, like the spokes of a wheel, or the ribs of an umbrella. The unexpanded flower buds look like clusters of green berries. The calyx is reduced to five minute, brown, triangular scales. The petals of the corolla of a yellowish green color, at first slightly cohere by their edges, but when fully expanded they are quite distinct, and spreading, becoming ultimately reflexed. The stamens are very prominent, equal in number, and alternate with the petals, and opposite the calyx lobes, they mature before the stigmas, the style is short and solitary, crowning the top of the ovary. The parts of the flower are often found in sixes, although five is the normal number. The flowers of the ivy are polygamous, *i.e.*, three different kinds may be found, although not all on the same bush. Certain plants produce (staminate) flowers, with perfect stamens containing abundance of pollen, but with abortive stigmas, hence these flowers are sterile, or barren, and produce no seeds. Other (pistillate) flowers occur with abortive stamens, producing no potent pollen, but with fully developed stigmas, these are very fertile, and produce abundance of seeds, although they must be fertilised with pollen brought from other flowers. Other bushes may bear (hermaphrodite) flowers, having perfect stamens and stigmas, thus having the power of producing seeds, in the ordinary way, within themselves. At present the ivy seems in a transition state, tending towards a separation of the sexes in different individuals, as may be seen in the willows, and many other plants, thus ensuring cross-fertilisation, which seems necessary for a robust progeny, this is a very interesting phase of evolution, which we have not space to elaborate in this connection.

The berries of the Ivy ripen in January and February, forming a very important and welcome addition to the food of birds when

severe seasons pinch with threatened famine the little feathered folks. The Blackcap Warbler, one of our sweetest songsters, is said to be particularly fond of them, and wherever Ivy abounds there it will be found. The Ivy is an evergreen plant, so called because it does not throw off the whole of its leaves annually like our ordinary forest trees, but the leaves remain persistent for several years, and although there is a periodic shedding of the leaves, it is so gradual that the plant seems always clothed with verdure. As in ordinary plants growth goes on in the warmth of spring and summer, when the young shoots and leaves are formed, at this period a supply of nourishment is stored up in the thick leathery leaves, which is again used in the formation of flowers and fruit at a season when the ordinary processes of vegetation are in abeyance. As in all evergreen plants, the leaves seem varnished on the upper surface, thus rendering them impervious to the soaking rains of winter, and also preventing the undue evaporation of the juices. Slightly magnified, the under surface is seen to be beautifully pitted with minute glands. The veins are often white, invariably so in the small-leaved woodland form, and may be seen radiating through the dark-green substance of the leaf forming a regular net-work. The whole of the flower stalks, the young shoots and leaves, and often the under surface of the mature leaves are covered with a scurfy pubescence, under a lens this is seen to be formed of stellate hairs, the points or rays of the star vary in different varieties, as many as 15 being found in some, and often so closely interlaced, as to give a felted appearance to the young twigs, they will amply repay a close examination.

Economically the ivy is not very valuable, there is a prejudice against it for causing damp in houses, over which it climbs, and a better founded dislike to its unchecked spread in a wood. It is chiefly in request for internal decoration in winter. Its ornamental character is universally admitted, clothing a

decaying tree in the forest the poet has aptly sung:—

"Should aught be unlovely which thus can
shed
Grace on the dying, and leaves on the dead."

Sheep eat the leaves readily, and in hard winters it might be useful for forage. Its juices are acrid and astringent, the berries are emetic and purgative, but are not held in high repute. Formerly the leaves were much used as a remedy for cuts, and especially burns. Salves and poultices made from them were supposed to be especially powerful in drawing morbid humours from the body. It was supposed to be under the influence of Saturn. By the ancients it was held in great esteem, in the Greek mythology it was sacred to Bacchus, his chaplet was formed of its entwined twigs, as also was the poet's crown. Its leaves were used in their libations at the shrine of the God of Wine. An old writer says that if wine is stood in an ivy cup, it will soak through, so great is its antipathy to that plant. And old Culpepper says so great is this antipathy that if one hath got a surfeit by drinking of wine, his speediest cure is to drink a draught of the same wine, wherein a handful of ivy leaves, being first bruised, have been boiled. By the Egyptians it was consecrated to Osiris, and it is said one of the Ptolemy's caused the impress of an ivy leaf to be branded on the foreheads of the Israelites, as a badge of servitude. In the language of flowers it is the emblem of charity, because it covers over the evidences of neglect and decay; and of friendship and fidelity, because it clings so closely to the object round which it twines. It is the only representative of the Natural Order *Araliaceæ*, found in Britain. The name *Hedera* is of uncertain etymology, and is the Latin name for the ivy, the specific name *Helix* is given because of its twining habit of growth. On the Western coasts, from Carnarvon to Cornwall, and the Isle of Wight, a peculiar parasite *Orobanchæ Hederae* may be found growing on the roots of ivy.

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NATURALIST,

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 56.

NOVEMBER 20TH, 1880.

VOL. 2.

PUPA DIGGING.

By R. J. ATTYE.

NOW is the time for the Pupa digger to set to work in earnest, if he has not already done so. Merrin, in his Lepidopterist's Calendar, mentions upwards of 150 Macro-Lepidoptera in the pupa stage during November, a considerable number of which may be obtained by digging, and a careful examination of palings and tree trunks, for pupæ spun up. The most productive trees are oak, elm, lime, and poplar, and some pupæ may be found at beech and birch. All that is required for digging is a small garden trowel and a box with some moss or cotton wool in it. When commencing to dig the trowel should be inserted at right angles to the trunk of the tree and about three or four inches from it, and driven in until it touches the bark of the tree; the sod of earth should then be raised as gently as possible, as taps with the trowel sometimes prove very fatal.

When the trowel is once inserted it should not be drawn back if it is not quite touching the bark of the tree, as a second insertion will inevitably crush any pupæ which may have fallen from the earth, loosened at the first insertion. Digging with the trowel parallel to the trunk of the tree is to be avoided if possible, as it is often fatal, since many pupæ spin up close to the bark. Many pupæ are to be found at the apex of angles made by the roots of trees; but some, on the other hand, as many of the genus *Tæniocampa* are often found under loose tufts of grass at trees having no angles, their roots being invisible, or not visible enough to form an angle; and when the tuft is pulled up they may be shaken out. A useful book on pupa digging is "The Insect Hunter's Companion," by Rev. J. Green. I have found tan the best thing to keep pupæ in, but it is in much too damp a state when first obtained from the tanyard, and must be almost, if not quite, dried before pupæ are placed in it. A good sized flower pot half full of tan, with a piece of gauze or muslin tied over it, makes a very good breeding cage.

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TO CORRESPONDENTS.

Dr. Ellis writes wishing success to the New Volume of the Y.N. He says he should be glad to join an Exchange Club, especially if some Coleopterists will join, and promises several local species for the coming season.

EXCHANGE CLUB. F. M., Devonport, and others.—No charge will be made for our services in the Exchange Club, but we will expect return postages to be paid, both on letters and parcels. If it be necessary another year to supply list of desiderata, a small payment will be required, but probably some of the lists already printed can be made to serve, so that the payment will be merely nominal. Send us your lists of Duplicates and Desiderata now.

COVERS FOR VOL. I.—We will be able in a week or so to reply to numerous enquiries on this head.

NOTES, CAPTURES, &C.,

GREY PHALAROPE IN CHESHIRE.—I have to record the capture of another specimen of this rare bird in our neighbourhood. It was shot on Saturday last, (Nov. 6th,) on Little Hilbre Island, at the mouth of the river Dee, by Mr. Meredith. The specimen has been sent to one of our local naturalists for preservation.—Dr. J. W. ELLIS, 138, Crown St. Liverpool, Nov. 13th, 1880.

MACROGLOSSA STELLATARUM.—I have had the pleasure of breeding two fine dark specimens of this insect. The larvæ were taken at the Wallasey Sandhills, feeding on *Galium Verum*, on September 1st, and the first specimen emerged on October 22nd, the second a few days later. Is it usual for this species to emerge at so late a season of the year.—IBID.

LARVA OF *M. BRASSICÆ* FROZEN.—On the morning of the 2nd inst., I found a larva—the green variety of *M. Brassicæ*. I took it to be—frozen quite stiff, and to all appearance dead, I took it and put it in a warm place, and in the course of half-an-hour it was quite lively, and appeared none the worse from having been frozen.—JOHN HILL, Little Eaton, Nr. Derby, Nov. 10th, 1880.

LATE APPEARANCE OF *A. ULMATA*.—On the 26th ulto., I met with a specimen of *A. Ulmata*, it was quite fresh, and looked as if it had only just emerged from the pupa, do you think it possible to have been of a second brood? I may say that the elm trees near were all nearly defoliated, the larva were so numerous, and some larva I had taken had changed to the pupa state nearly five weeks before the date mentioned.—JOHN HILL, Nov. 10th, 1880.

PARTRIDGES AT PLAY.—About 10 a.m. on November 4th, whilst my sister and I were at the window watching two young rabbits at

play on the lawn, close to the house, a covey of about a dozen partridges came out of the shubbery, and on seeing the rabbits ran up to have a game with them. The rabbits seemed quite to enter into the fun, and they chased each other about for some time. Finally the rabbits retreated into the shrubbery, when a fine game began among the partridges. Some amused themselves playing hide and seek amongst the bushes; some pursuing each other up and down the lawn; others engaging in a mimic warfare; whilst a few, of a quieter disposition, squatted in the middle, seeming to play the part of judges, and all indulging in repeated calls. In the midst of their games one would suddenly drop its wing as though it was broken, or pretend to have a broken leg; and one being chased by another lay close on the ground, curling itself up into a little round ball in its attempts to hide from its pursuer, in which it succeeded, the other running close past without noticing it. This went on for about fifteen minutes, after which they became quieter, and finally dispersed. Partridges often come on to the lawn to feed, and dust themselves in the beds, and pick up gravel off the paths, but we never before saw them play as described above.—N. PRESCOTT DECIE, Bockleton Court, Tenbury.

EXCHANGE.

Peronia permutana for other local Tortrices or Tineina.—C. S. GREGSON, Rose Bank, Fletcher Grove, Liverpool.

DUPLICATES:—Ova of *Boreata*. DESIDERATA.—Ova, Pupæ or Imagos of other species.—J. W. CARTER, 168, Priestman St., Manningham, Bradford.

TO MICROSCOPISTS.—For hairs of real Scotch Wild Cat, send stamped envelope to S. L. MOSLEY, Beaumont Park, Huddersfield.

CORREGINDA.—Errata, Page 14, line 2, for *Brumata* read *Boreata*.

BRITISH BIRDS; THEIR NESTS AND EGGS.

S. L. MOSLEY.

Genus II., *Aquila*.

AQUILA.—The Latin word for Eagle.

Only one representative of this genus inhabits this country. It is of large size. The bill is not so large as in the last genus, its habits not so vulturine. It may at once be distinguished by the tarsus being clothed with feathers.

Another species having feathered tarsi has occurred in Britain, though very rarely; it may be distinguished by the wing coverts and the tertaries, each having a white spot at the tip. It is called the Spotted Eagle, and is smaller than our species.

II.—GOLDEN EAGLE.

Aquila crysaetos, Linn.

Eryr Melyn (Ancient Britain).

CHRYSAETOS.—From *Chrysos* (Gr.), gold, and *aetos* (Gr.), an Eagle. So called from the golden color of the feathers on the neck of a mature bird.

Size.—Male, length about three feet from bill to tip of tail, and eight feet from tip to tip of expanded wings. The female is larger, specimens having been obtained which measured ten or eleven feet in expanse.

Plumage.—THE ADULT BIRD has the bill slate blue*; cere, bright yellow; eye reddish brown, the head and neck is covered with long-pointed feathers of a bright golden brown; rest of the body brown, darker on the back, the primary wing feathers inclining to blackish. The tail has the middle feathers the longest, and is bluish grey with two bands of lighter color. The legs are

feathered down to the toes, by which it may at once be distinguished from the last species. Toes bright yellow. (Pl. 2, Fig. 1.)

IMMATURE birds of one or two years old have not the bright golden hue on the neck and nape; the eye is darker, and the tail has the upper part of the feathers white. In this state of plumage it is often confounded with the young of the White-tailed Eagle, but they may at once be separated by the present species having feathered legs. (Pl. 2, Fig. 2.)

THE YOUNG are at first covered with a silvery down.

VARIETIES of this species have occurred pure white, but they, or indeed any striking varieties, are extremely rare.

Food.—The food of the Golden Eagle consists chiefly of such birds, as ducks, grouse, &c., and animals, such as fawns, hares, rabbits, and young lambs. Even sheep are sometimes attacked and killed. As many as 300 skeletons of ducks, and 40 of hares and rabbits are said to have been found about one of their nests in one of the German forests. This species like the rest of the family prefers to kill its own meat, only feeding upon carrion when forced to do so by hunger. The Golden Eagle is said, at times, to have taken up young children and carried them away to its eyrie or nest.

IN CONFINEMENT it should be fed upon raw fresh meat, or small living animals. It should be placed in a roomy compartment with some large dead branches for it to perch upon, otherwise it will soon lose much of its beauty of plumage.

Habitat.—In former times the Golden Eagle was not a rare bird in Britain, and up to the beginning of the present century, it used to breed not unfrequently in Cumberland and Westmorland, and even in Derbyshire. Even now stray specimens are sometimes killed in England, several having been killed at Flamborough Head, and other places. In the south of England it is very rare, most of the so-called Golden Eagles killed in the south being the young of the

* There is an old superstition in the Highlands and perhaps elsewhere, that the Golden Eagle's longevity is owing to its power of casting and renewing its beak. In a communication to "Land and Water," from Mr. Frank Buckland, a quotation was made from an old Psalter, of date 1633, wherein the passage "Who satisfieth thy mouth with good things, so that thy youth is renewed like the eagle's," (Psalm ciii, 5,) was rendered.

"That fill'd with goodnesse thy desire,
And did prolong thy youth;
Like as the eagle casts her bill,
Whereby her age renew'eth."

white-tailed species. Its breeding haunts are, however, now confined to the Highlands of Scotland, and the wild parts of Ireland, and even there, like all other birds of prey, it is becoming scarcer every year. Game preserves and birds of prey do not go very well together.

ABROAD it may be met with in almost all parts of the Continent of Europe, especially along the Pyrenees, the Alps, in Russia, and the Scandinavian Mountains. It also inhabits the Himalaya, and other portions of Southern Asia, and the Rocky Mountains, and other parts of America. It is generally found about rugged mountain sides, being more of an inland bird than either the White-tailed Eagle or the Osprey.

The Nest is placed upon a ledge of some high cliff, rarely in trees, and not unfrequently in the vicinity of some inland loch. The materials used in its construction are chiefly sticks of various sizes, some of them being as thick as a man's wrist, with smaller ones, and sometimes a bit of coarse grass or heather for the lining. The quantity of material used is enormous, as much as two or three barrow loads being used in its construction. The old birds generally return to the same site year after year if not disturbed. During incubation, and while the young are in the nest, it is strewn about with large quantities of provisions, and in times of scarcity men have been known to support their families for a considerable period by robbing the eagles of the food provided for their young.

Eggs.—Generally two eggs are laid, but sometimes there are three, and one case is mentioned "*Ootheca Wooleyana*" in which there were four. They are greyish white, more or less mottled in a very irregular manner with different shades of red-brown and dark grey (Pl. 2, Figs. 1 and 2). The eggs of young birds are much less marked than those laid by old birds. Some laid by *known old birds* have been nearly covered with streaks and blotches. No doubt a great deal depends

upon the age and health of the hen bird. The Golden Eagle is an early breeder, and the eggs should be sought about the middle of April; the young being hatched by the end of month or beginning of May.

VARIETIES of the eggs of this species are sometimes met with, either pure white, or with the markings very few or faint. Sometimes also, as in others of the Falconidæ, the markings are concentrated upon the small, rather than the large, end. At other times they are almost uniform brownish drab. This variety (Pl. 1, Fig. 1) is figured from a specimen taken in Ross-shire, on April 10th, 1860, and represented in "*OOTHECA WOOLEYANA*."

ENTOMOLOGICAL EXAMINATIONS.

"John Peel" has again sent the best reply to our request for "a definition of the order Lepidoptera." We regret we have but few competitors again, and should be pleased if more of our young Naturalists would enter the lists.

REPLY.

The order LEPIDOPTERA, which contains the two families of Butterflies (*Rhopalocera*) and Moths (*Heterocera*), derives its name from the two Greek words "*lepis*," a scale and "*pteron*," a wing, in allusion to the minute scales, covering both sides of the wing and overlapping each other like the leaves of a fir-cone; their bodies are clothed with longer or shorter hairs, which in some cases cover also part of the wings. These insects have the mouth formed for suction and their mandibles i.e. upper jaws, which are large and strong in the larvæ, are scarcely perceptible in the imago, being merely rudimentary jaws. The maxillæ i.e. lower jaws on the contrary are very much elongated and meet so as to form the proboscis, through which the insect sucks the honey out of the flowers. At the base of each portion of this proboscis is a minute tubercle, which in

some species is developed into an elongated pair of feelers or maxillary palpi. The larvæ of this order are furnished with scaly heads, and very powerful jaws; they have also six short scaly legs attached in pairs to the three segments succeeding the head, and a variable number (never exceeding 12) of short thick fleshy legs attached in pairs to the hinder segments of the body. They feed almost without exception upon vegetable matter. The pupa is enclosed in a hard, shelly case, the form of which is extremely variable.

The most important feature in which the Lepidoptera differ from all other orders is the scaly formation of the wings, as mentioned above; the *Hymenoptera* (Saw-flies, Wasps, &c.) having the wings membranous and without hairs, whilst the *Neuroptera* (Stone-flies, Dragon-flies, &c.) have them traversed by a great quantity of nervures, dividing them into a larger number of spaces or cells, than is the case, with any other insects, and so on. The larvæ and pupæ of the order *Orthoptera* (Cockroaches, Crickets, &c.) resemble the imago in shape, but have no wings, and the pupæ are as active as the larva or perfect insect, therein essentially differing from the larvæ and pupæ of the Lepidoptera, which bear no resemblance whatever to the perfect insect. The mouth of the Lepidopterous larva differs from that of the imago, as shown above, whilst in all other orders, the mouth in the larval state closely resembles that of the perfect insect. Thus I have shown that the order Lepidoptera differs in various ways from the orders, Hymenoptera, Neuroptera, and Orthoptera, and upon careful examination it may be found that it differs in some respect from every other order of insects.—
"JOHN PEEL."

We will now ask for a paper of a rather different character, and one which we think will not only be interesting, but found of service to house-holders—i.e. for the best essay on the life history of the Cockroach (*Blatta orientalis*), with suggestions for its extermination. The replies as before to be

confined to four sheets of note paper and to be in our hands by November 27th.

A PAPER ON APIS MELLIFICA.

THE HONEY BEE.

By the Rev. G. C. B. MADDEN, Huddersfield.

Continued from page 11.

In the swarm you will find three different forms of Bees. The smaller insect is the imperfect female, which does all the work of the hive, such as repairs, providing food, and nourishing the young, of these there are many thousands. Then you will notice some large and coarsely made bees, who make a very loud hum when they fly, they are the drones, or males, of which there may be from one hundred to one or two thousand, and if you are fortunate enough you may see an elegant looking insect, with a very long body, about whom a number of workers always cluster, this is the Queen, or Mother Bee, a perfect female. Let me briefly describe the life history of each of these.

1. **The Worker.**—The ova is laid by the Queen in a worker cell, and is a small white object, much longer than broad. (?) It is placed at the bottom of the cell, generally a little towards one side, for three days it continues in that stage, when a small white grub is hatched, which is immediately supplied with a specially prepared food by the nurses. This grub rapidly grows, until on the sixth day after hatching it spins itself a white silken cocoon; and the Worker Bees seal over the end of the cell with honey and pollen. Enclosed in its tomb it gradually assumes the form of the perfect insect, and when twelve more days are over, it gnaws its way out, and appears on the comb, a perfect worker. Thus the Worker Bee takes twenty-one days to undergo its transformations. Its life varies in length. In the height of summer, when it works day and night, it only lives about six weeks, but in the winter it will live six or

eight months. The workers form the main portion of the hive, they collect the honey, they carry home the pollen, they gather the sticky propolis; and it is upon them that the defence of the hive devolves.

The Drone has a very similar history in its early stages, with this exception, it takes twenty-five days to mature instead of twenty-one, and the egg which produces a Drone Bee is laid in a larger cell, especially made for the purpose. The Drone leads a very lazy life, it is the male bee, it comes into existence about May, and is destroyed by the workers in July or August. The reason of so many Drones, is to secure the fertilization of the Virgin Queens, which takes place in the open-air, they also, I believe, keep up the temperature of the hive, thus releasing a large number of workers.

The Queen, or Mother Bee, is, however, the wonder of the hive. The egg from which she is raised, is laid in a specially formed cell, something like an acorn in shape, the grub is fed with a highly nitrogenous food, and she emerges a perfect female after a period of only sixteen days. She lives for about four years.

The question arises, what happens if the Queen meets with some casualty? How can her place be provided? If this happen in the winter time the hive must perish unless a Queen is provided by the Bee Master, but if it happens during the period when young brood and eggs are in the comb, then the Bees provide themselves with a Queen in the following marvellous manner. When a hive has come to the knowledge of the absence of a Queen, and settled down seriously to work after the consequent excitement, they select, in some suitable position, an egg, which, in ordinary circumstances, would produce a Worker Bee. The surrounding cell walls are broken down, so as to enlarge the particular cell in which the selected egg is placed. As soon as it is hatched it is fed with a particular food, popularly called royal jelly. The cell is gradually enlarged by the males,

until it assumes a pear shape, and at the end eight days she is covered in, and begins to spin her cocoon, which occupies one day, she then rests for two days sixteen hours, when she assumes the proper stage, in which state she remains for four days and eight hours, coming out a perfect Queen in a total period of sixteen days. This change of food, and change of cell produces a wondrous change of structure. She has a differently shaped tongue to the Worker Bee, her hind legs are flat instead of concave, she has no fringe of hair, to form the baskets for carrying pollen. Such is one of the greatest wonders of the hive. The young Queen sets forth during the next bright weather to meet her mate, here is the reason of the number of Drones, as if there were but a few, she might in her flight easily miss becoming fertilized. On her return from her wedding tour she does not again leave the hive, except with a swarm. Her duties are egg laying, and in this art she is a regular proficient. It has been calculated with certainty that during the summer she lays no less than 2000 eggs per diem. She continues laying more or less for some nine months of each year, thus becoming the mother of some, in round numbers, 300,000 bees in each year. This rapid propagation is needed to keep up the population of the hive. The Worker Bees always treat their Queen with great respect and care, they surround her with a guard of honor, and feed her in the most loving manner. If a strange Queen enters the hive, the Workers will not insult or attack her, but surround her, until she is brought face to face with their Queen, who furiously attacks her, and stings her to death.

Such are a few of the most interesting facts concerning a hive of Bees, which I hope will lead many who read the *Young Naturalist* to become owners of Bees. If it had been in the province of a Natural History Magazine to describe Bee keeping, I should much like to have done so, as the modern system of Bar frame hives is so vastly superior to the old straw skeps.

E. G. MEEK,
NATURALIST,

56, BROMPTON ROAD, LONDON, S.W.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 57.

NOVEMBER 27TH, 1880.

VOL. 2.

LOCAL COLLECTIONS.

NO one ever thinks the capture of *Pieris brassicæ* or *rapæ* in their own kitchen garden, on a sunny day, and at the proper time for their appearance, to be a fact worth recording: yet Entomologists would be puzzled to account for it, if there were certain districts where cabbage gardens abounded, and other circumstances seemed suitable, that ubiquitous species like these were entirely absent. Hence while records of the ordinary occurrence of common species are not worth making, no list of the fauna of a district would be complete without them. Local lists of species, when perfect, are of considerable value to the student, and many things have been learned by their comparison that otherwise would have remained unknown. Certain species, for instance, are known to be attached to certain geological formations,—one occurring on chalk, another on peat. Some species occur only on the sea coast; some only on moorland, at considerable elevations above the sea. Localities of different character having

certain species attached to them with such certainty that there would be no difficulty for an experienced collector to describe the character of the district in which a certain fauna occurred. Mr. Stainton propounded a question in Marine Zoology many years ago, as one that might be asked at some future date. He supposed a bottle of water, containing marine animalculæ, to be given to the student, who was to discover by the species it contained what was the latitude and longitude of the vessel when the water was taken from the ocean. A similar question could be answered in reference to our own Lepidopterous fauna without much difficulty; and the more complete the collection, the more correctly could the entomologist approach the centre around which the species had been found.

In most of towns of any size a museum will be found, and very many of these contain a heterogeneous collection of odds and ends from all parts of the globe, with little attempt at arrangement or classification. A heathen god stolen from some Indian temple; a kitten with six legs or two

tails, along with stuffed birds, cases of insects, and relics from the prehistoric ages; clubs and other weapons from the South Seas, and so on. All very interesting in their places, and if well arranged, catalogued, or labelled, such a collection is always worth looking at. For scientific purposes we would much prefer a museum containing specimens of the fauna of the locality only; and we would urge upon the curators of such institutions that however much they may be bound to cater for the taste (or want of taste) of the general public, by introducing stolen images of hideous form, or other curiosities, they should always endeavour to have some department of the collection for the illustration of the Natural History of the district. To the private collector we would also say, while you do your best to gather together a perfect collection of the fauna of your country, in whatever department you are interested, or even if you extend your researches beyond Britain, we would urge you to have, separate and distinct, a collection if it be but a small one, of the species that occur in your own immediate neighbourhood. To visitors from a distance such a collection would be greatly more interesting than an ordinary cabinet with full series of all the species, for we are all familiar enough with most of the British species, and most of collections are but repetitions of each other, while to the rising generation what we suggest would be of great service. We were much struck the other day, when looking over a small

collection of this sort, of the lepidopterous fauna of the Huddersfield district, with the absence of such butterflies as the Meadow Brown (*S. janira*), the Small Heath (*C. pamphilus*), and many others that we had always believed were found everywhere. Why do they not occur there? We can suggest no reason. Can any of our readers? Many important questions arise in this way, and while the appearance of certain species in a district may generally be explained, their absence is often more difficult to account for. If we had more local knowledge, more and better local lists, to compare one with another, many of these difficulties might perhaps be explained. Mr. Bignell, of Plymouth, has furnished us with some carefully prepared lists of the *Geometræ* and *Pyralidinae* of his neighbourhood, and no doubt other readers would be glad to do the same. We propose, therefore, to set apart a small portion of our paper—perhaps a column—for the insertion of such local lists, which will be continued from week to week until completed. Mr. Bignell's lists seem to us to be models of what such things should be—brief, yet full, and we shall be glad if anyone preparing such papers for us will take as much care as has been taken in the preparation of these. Be sure to include every species, and let your notes be as short as possible. We cannot spare much space, and while we wish all to be said that is important, the fewer words that are used the better in a list of the kind.

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NOTES, CAPTURES, &C.,

SPRING BLOOMING OF COLCHICUM AUTUMNALE.—In the Spring of this year (See *Y. N.*, Vol. 1, page 221), I recorded the—to me—curious fact, that *Colchicum autumnale* was then in full bloom, although the flowers were paler and more wax-like than the usual Autumn ones. This I supposed was owing to it not flowering the previous autumn, which I attributed to the wet, sunless summer. Being anxious to learn how this plant

would return to its normal habit. I watched it as closely as lay in my power. The leaves, which usually come up in spring with the seed pods, came almost with the spring flowers, but never could I or any of my party meet with a seed pod. This autumn the meadows where it occurs were gay as usual with its lovely lilac, leafless flowers, and no doubt can be felt that it will, as its wont is, throw up its seed pods with the leaves in 1881.—(Mrs.) S. E. HUTCHINSON, Leominster.

EXCHANGE.

DUPLICATES:—*Litura*, *Aprilina*, *Satellitina*, and *Oxyacantha*. DESIDERATA:—Numerous.—A. BRAMWELL, Prior Street, Gateshead-on-Tyne.

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BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by S. L. MOSLEY.

(Assisted by Contributors to the *Y. N.*)

Genus II, *Melitæa*, F.

“*MELITÆA*, a town in Thessaly. Sodoffsky proposes *Melinæa*, a surname of Venus, from *Meli*, honey.—A.L.

This genus does not contain half so many species, as the last named, only about 40 being enumerated. Like it they inhabit, for the most part northern and temperate climes. Many of them are excessively variable, and some species seem to run so much into others; their discrimination is often a matter of difficulty, which the uniform character of their markings does not tend to simplify. Only three species are British, but though they are variable enough themselves there is no difficulty in distinguishing them. Stray specimens of one or two others have been

found in Britain, but none that have been attempted to be foisted on the unware as *A. Niobe* was. The three British species may be easily recognized by the following table.

Underside of hind wing without black spots.

M. Athalia.

Underside of hind wing with one row of black spots, *M. Artemis*.

Underside of hind wing with more than one row of black spots. *M. Cinxia*.

18 CIXXIA. Plate 10, Fig. 2.

The Glanville Fritillary.

"CIXXIA, L., *Zinxia*, surname of Juno, connected with *cingulus*, a girdle." A.L.

Imago.—Plate 10, Fig. 2. Upper and underside. Fulvous, the rays black, and several wavy black lines across the wings, giving the insect an appearance which Mr. Stainton appropriately calls "tessellated." The hind wing has a row of black spots in the second row of fulvous marks continuing from the hind margin. Underside, paler fulvous, fore wing pale straw color at the tip, the wavy lines of the upper side are not so distinct except at the tip. The hind wing has the wavy lines distinct, and between them alternately two pale fulvous, and three very pale straw colored bands, on these there are several rows of black spots and streaks, and in the middle of the fulvous band nearest the base, is a pale straw colored spot.

Larva.—Plate 10, Fig. 2a, black, with red head, and claspers, the legs being black. Between the segments are rows of white dots. Each segment has eight warts, from which proceed tufts of short bristly black hairs.

Pupa.—The pupa is suspended by the tail, is black and smooth, without the curves and angles of the preceding or succeeding genera.

Food Plant.—The larva feeds on the common, or narrow leaved plantain (*Plantago lanceolata*).

Times of Appearance.—The imago emerges during May and June, sometimes being out quite at the beginning of the

former month. The eggs are laid in batches on the food plant, and the larvæ emerge towards the end of July, or in August. They feed rather slowly during the autumn months, and as cold weather approaches, they spin a kind of tent among the grass stems and plantain leaves in which they pass the winter. Early in spring they leave their hibernæ ulum, and feed up rapidly. Unlike the larvæ of many other Butterflies, they are fond of the sun's rays, and feed perfectly exposed, and there are often a great many on one plant. They are active lively little creatures, and very easily reared in confinement.

Habitat.—In England this pretty species occurs in but few localities, and all of them in the South. It is abundant in the Isle of Wight, and is also found in other places in the southern counties. It is well spread over Europe, being only absent from the polar regions. It occurs in Asia Minor, and also Siberia. Kirby gives "woods" as its habitat, but judging from its haunts in this country it would appear to prefer the sheltered slopes of grassy hills. The food plant loves open places, rather than the shelter of a wood.

Variation.—*Cinxia* is most subject to variation on the underside of the hind wing, by the enlargement or diminution of the black spots. In some specimens they are like larger black blotches or streaks, while in others they are almost wanting, especially on the central pale band. In some the upper side veins as the preceding genus does, by the enlargement of the black spots, or the suffusion of the wing with black, but the variation of the underside is much more frequent. Two named varieties are given in Kirby *Fulla*, Quens. and *Delia*, Wallengi. We do not know how they differ, but they both appear to be northern forms.

Parasites.—We know of no Parasites having been recorded from this larva, but as it is frequently met with, we do not expect another season to go by without one or more being reared, now that attention is called to it.

LOCAL LISTS.

The Geometrina of Plymouth and vicinity.

(Arranged according to Stainton.)

By G. C. BIGNELL, M.E.S.

Oncophanes sambucata.—Common. July.
Lanes and hedgerows.

Epione apiciaria.—Rare. July and August.
Near the Stonehouse reservoir.

Rumia crataegata.—Abundant. April to October. Lanes and hedgerows.

Venilia maculata.—Very common. May and June. Lanes and hedgerows.

Angerona prunaria.—Common. June and July.
In and near woods.

Metrocampe margaritata.—Common. July.
Cann Wood, Morwellham, Ivy Bridge, Cornwood.

Elophia fasciaria.—Not Common. June and July. Bickleigh wood, Morwellham, Blatchford.

Eurymene dolobraria.—Not common. June.
Cann wood, Saltram.

Pericalia syringaria.—Rare. July. Near Cann quarry.

Selinia illunaria.—Common. April and July.
Lanes and hedgerows.

S. lunaria.—Not common. June. Lanes and hedges, Compton, Saltram, Bickleigh.

S. illustraria.—Not common. May and August. Lanes and hedgerows, Compton, Cann wood, Saltram.

Odontopera bidentata.—Common. May. Bladderly Lane, Cann wood. Bickley, Radford.

Crocallis clinguaria.—Common. July and August. Lanes around Cann wood, Bladderly lane, Compton.

Enuomos fuscantaria.—Not common. August and September. Cann quarry, Lipson.

E. erosaria.—Rare. July and September. Near Shaugh.

E. angularia.—Common. August and September. Lanes; a visitor to gas lamps.

Himera pennaria.—Common. October and November. Cann wood, lanes, and hedgerows, Tothill, and at gas lamps.

Phigalia pilasaria.—Not Common. January, February and March. Plymbridge, Bickleigh.

A SWARM OF BUTTERFLIES.

By JOHN E. ROBSON.

The occurrence of any insect in unusual numbers is always a matter of interest to the Entomologist, even when the species are very common. The *Pierids* are known to have the habit of sometimes appearing in immense swarms, and as it does not fall to the lot of every one to witness the passage of one of these migratory hordes, a few notes on the passing of a flight of the Large White (*Pieris brassicae*) that I once witnessed may be worth printing. It was a fine hot day in June, there was scarcely any wind, and the atmosphere was unusually close and sultry. Hartlepool stands almost on a neck of land running into the sea, and there are scarcely any gardens near it, or waste ground near enough to make even White Butterflies "common objects" in our streets. My attention was attracted soon after noon by an unusual number of them flying past, five or six being visible at once, and as one passed on, another appeared, so that the street was never clear of them. Children going to school were eagerly pursuing them, and creating quite a commotion by their shouts about the "Lowes." These were but the advanced guard, and the main body was yet to come. The butterflies rapidly increased in number, until, instead of five or six being visible at once, many hundreds even thousands were in sight, and the most unobservant were attracted by the unwonted spectacle. They flew very leisurely, yet seemed to have a special purpose in view, for they were all going in one direction, towards the north-west. They kept passing in such enormous numbers that Mr. Darwin's expression, "snowing butterflies," is the most appropriate

that can be used. Besides their color resembling snow, their rather irregular flight exactly resembled the fall of large flakes of snow. From about two in the afternoon they continued passing on, no diminution of their enormous numbers being perceptible, for fully three hours. About five o'clock, a thunderstorm broke over the town rather suddenly, accompanied by very heavy rain. This drove them all to the ground, and they could be seen floating down the channels, or vainly struggling to raise themselves from the mud of the streets. Some found shelter under doorways and the cornices of shops, but the greater number must have perished. When the sky cleared it was too late in the evening for them to resume their flight. I went up to the churchyard, almost the only place where there was any sort of herbage on which they could rest, and there were hundreds upon hundreds of them, sitting on grass stems, tombstones, &c. I brought a few away with me, but they were quite of the usual form. Next day there were a large number of them flying about, but nothing like the swarm of the afternoon before, and they did not seem to have the settled line of flight they had the previous day, for they flew vaguely in all directions.

Where they did come from in such enormous numbers, was asked, not by Entomologists only, but by everyone who had seen them, and I dare say many thought me very ignorant of my special subject, because I could not explain all about it. I made every possible enquiry, but could arrive at no satisfactory conclusion. From the direction of their flight, it was evident they came to us from the sea, and a fisherman, who was in the bay that afternoon, told me he noticed them some miles off the land in immense swarms, some alighting on the boat, its mast, or cordage, others appearing to settle for a moment on the surface of the ocean, and then rising from it again, for the sea at the time was perfectly smooth. These were travelling in the same direction, and seemed, he said,

to come either from the open sea, or from the extreme end of the high Yorkshire land, that bounds our view on the opposite side of the bay. Where did they come from? I can make no suggestion, but I will never forget the mingled feelings of wonder and delight with which I watched that sunny June afternoon, the passing of this enormous swarm of butterflies.

THE FOUR SEASONS:

A Story from the Book of Nature.

By LUCY FERN.

T'was on a bright sunny morning on the 21st of March, 18—, well, the particular year is of no consequence, all that we need say is, that on the morning in question might be seen a beautiful young female, and a rather care-worn young man standing at the garden gate of a rustic cottage, far away from the noise and smoke of busy town. Her attire was as graceful and elegant as her features, and his bore indications that each pocket was a library, and his countenance told plainly that health was sacrificed at the shrine of intellect. It was in the country, yes the country, that word which enraptures every true lover of nature with delight; the country, where birds warble their sweetest melodies, and seem filled with joy and delight, where grasshoppers chirp, and painted butterflies glide on poised wings from flower to flower, where crystal streams leap down the ferny glen from stone to stone, and where you might stretch upon the green sward and listen to the sweet chord of Nature's harmony, bid dull care begone, and feel happy. Yes, it was in such a place where the scene of our story opens. The little village had not more than a score of houses in it, yet it was a pretty place. The road through it was neither set with gold nor granite, but it was more beautiful than either, for it was composed of fine yellow sand,—sea sand to all

appearances, though miles away from any sea-shore; and to give it a still more sea-like appearance, boulders of various colors and sizes were intermixed with the sand, and the land as far as the eye could reach, in every direction, was a series of gradual undulations, as even and regular as if the tide had left them but a few hours before, only, of course, covered with a luxuriant crop of grass, corn, or other farm produce. The houses in the village were, many of them, only one story high, but in some cases an upper story would be indicated by a little window peeping out at a gable formed by the straw thatch or tile-covered roof. The outside of the buildings were "splash-dashed," that is, covered over with a coating of mortar and fine pebbles splashed on and then white-washed over, and in such a place a lime washed building is a pleasure to look at. It is not blackened in the course of a few days by factory smoke and chemical fumes, but it keeps beautifully white for months and months. A porch around the door is formed of lattice work, and along this and up the window sides are trained honey-suckles, jasmines, and roses; and such roses when in flower! not aphid-covered abortions with about five petals and a half, but real veritable roses as large as the palm of one's hand and as double as a dahlia, red, crimson, striped, pink, yellow, and pure white. These plants seem to be trying which can outstrip its neighbour. Up, up they go to the top of the lattice work above, up still higher, thread under the spout, and hang in graceful pendants from the eaves, or in some cases even ascending the roof to the ridge, down the other slope, and hang from the eaves on the opposite side. Along the sides of the garden walks are edgings of box, thrift, or some other suitable plants, and everything seems to grow to perfection. Vines are nailed against many of the house sides, and in the course of a few months these will be hung with a profitable crop of grapes. The people are always clean and tidy, and both old and young are ex-

tremely civil, something which cannot always be said of the people of larger towns. Nor was this the only place in England where such a state of things obtained, in many of the midland counties, such as Nottinghamshire, and in the south, and other places away from the manufacturing centres, such luxuriant flowers may be seen, and such civility can be met with in almost all the rural districts in Britain. Not longer ago than the year 1878, if you had been at the foot of a mountain called Whitbarrow, on the borders of Lancashire and Westmorland, one fine summer's evening, you might have seen a naturalist, jaded by a twenty miles walk during a reeking hot day, he had sought repose at an inn, much against his mind, but nevertheless a must-be thing, as he could see no other habitation. He had sought relief from the beerhouse in a walk to the mountain, until time for bed. He met a little girl, and asking her the way, she took from her head a bag of flour, and placing it upon a low wall, instructed him in the kindest manner, so different from that which he was used to meeting with at home, that it will take a long time to erase it from his memory.

But let us return to the two we saw at the garden gate, who are they? Evidently you do not know, so let us watch them and see if something cannot be learnt. See, she stoops and plucking two of the lovely snowdrops which grow almost at her feet, a yellow crocus and a fern leaf, places them carefully in one of the button holes of his coat. His hand is placed gently on her shoulder and as a pale tint of carmine gathers upon her cheek, he stoops and kisses her. The mystery is solved! They are evidently lovers, and while we have been taking our flights of imagination, they have been carrying on a mutual conversation. He again kisses her, and she him, and

"Pledges oft to meet again

We tore ourselves asunder "

he going his way along the road, and she joining two younger girls in the garden.

(To be continued.)

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E. G. MEEK,
NATURALIST,

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 58.

DECEMBER 7TH, 1880.

VOL. 2.

SCRAP BOOKS.

YOUNG people have always been fond of "Scrap Books." When we were young, pictures were neither so cheap nor so plentiful as they are to-day. The colored print that can now be bought for a few coppers, did not exist then, still those whose taste led them that way managed to please themselves with what they could obtain and many a pleasant hour have we spent in arranging our treasured scraps and pasting them into our book. The suggestion was made to us, a little while ago that considerable advantage could be gained if young people with a taste for Natural History would form a scrap book in accordance with their tastes. Botanical specimens are not always very beautiful but they sometimes are, and if not wanted strictly for scientific purposes, could often be made more so, and what could be prettier to look at and more interesting, than a group of wild flowers, dried and pressed to best advantage, and arranged on the page in the form of a bouquet. Very little experience would teach which plants dry best, which leaves, and which

flowers would keep their color. The wings of a butterfly or two, with the body painted in, could be placed in suitable places, or there is a process of "nature printing" by which the scales can be transferred from the butterfly's wing to the paper. Great scope would be afforded for the exercise of good taste. Other pages could have pictures of wild animals, birds or other things, and around them, instead of a printed border, could be arranged a border of fern fronds or dried leaves of other plants, or some of the beautiful colored seaweeds. Another very beautiful border could be made of skeleton leaves, bleached and mounted on black paper, for the preparation of which see Y. N. No. 2, page 14. Dried grass or moss is also very beautiful and could be grouped in many ways with good effect. We especially suggest the preparation of a scrap book of this kind to young ladies. A step further than this in a scientific direction, would be the mounting of dried plants singly, one on a page, or more than one where very small. The names both English and Scientific could be placed at the foot, and while looking over such a scrap

book, would be a good botanical lesson, the formation of it would be the first step towards a Herbarium. Many Botanists in drying plants for Herbaria, pay too little regard to the natural beauty of the specimen, and so long as they have the specimen so that it can be recognised on examination, they care for nothing else. We think this a great mistake. Some Entomologists treat their insects in the same way, but they are few in number, and we never knew an Ornithologist who did not make it his special study to preserve and show his specimens in the most perfectly natural manner. No one who commenced to study Botany, after the formation of such a scrap book as we have suggested would be satisfied with their plants, unless they were as like life as they could be made.

Besides mounting a plant on a page of the book, as described, the margins could well be occupied by the various parts of the plant mounted singly. The cotyledons or seed leaves, a perfect leaf, the petals mounted to show their shape, the seed pod or whatever the receptacle might be. If there were not thought to improve the page, another could be used for them, and they could be displayed so as to look well, as well as to be of scientific value. In such genera as GERANIUM or PAPAVER (the geranium or the poppy) the whole of the British species could be displayed on one page, showing all these important parts. In larger genera, the leaves could be shown on one page, the petals

on another, and so on, and where these were thus displayed so as to be easily compared, the beginner would find that many things he had thought extremely difficult became very easy indeed. If parents would give their children a little help and encouragement at the commencement, they would soon take an interest in such work, and the best results would follow. Why has there been, and still is, such a rage for collecting Postage Stamps. There are few school boys to-day who do not collect, or have not collected stamps or crests. The fact is, they have been able to do this without much help from anyone, and if young people were aided a little at first, they would collect other things besides stamps, and as they grew up, would study them, as well as collect them.

NOTES, CAPTURES, &C.,

FOOD OF STURNUS VULGARIS (THE STARLING) IN NOVEMBER.—When dissecting one of these birds on Saturday last, I found in the stomach 12 larvæ, one of them a sawfly larva, 3 worms, and a minute univalve shell about one-eighth of an inch long.—GEO. T. WHEELDON, 83, Colmore Row, Birmingham.

COLEOPTERA AT YORK.—Taking the advice of my friend Mr. Gregson, that "work wins," I had the good fortune to take (last Sunday morning, 28th ult.) 2 specimens, male and female of that fine insect (*Chlaenius nigricornis*,) on Fulford Ings, in profusion I also took *Auchomanus junceus parvum punctatus*, *Selpha atrata*, and about 10 *Staphylinus erythropterus*, a very fine *Brachelytrous* insect, all at tree roots, on the edge of the flooded fields there.—JOHN H. SMEDLEY, Fossgate, York, 30th November, 1880.

TO CORRESPONDENTS.

G. DE CASTILLON, MEG YN.—Your subscription is paid up to No. 92.

J.H.S. York.—Send us your lists of Duplicates and Desiderata for the Exchange Club. We shall try and begin the Magazine Club with the new year.

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CORRESPONDENCE.

SIRS.—After receiving the monthly part of your magazine for November, I decided to take it in weekly, but my newsagent found it rather difficult to get it, but he succeeded in getting me Nos. 54, and 55, and hopes to supply me weekly in the future. I was very much pleased to see your paper on "Exchange," I am sure it will be the means of getting species not to be got otherwise except at great expense, and again I think it will save much postage, and I for one shall be very much obliged to you for taking on yourselves the duty of receivers, and I hope all duplicates sent will be well set and in good condition. I enclose list of a few duplicates that I have, also some of my wants; of course if you have not got one thing you may have another.—I remain, yours, J. T. RODGERS, Chadderton Road, Nov. 28.

LOCAL LISTS.

The Geometrina of Plymouth and vicinity.

(Continued from P. 29.)

By G. C. BIGNELL, M.E.S.

Biston hirtaria.—Rare. April and May. Cann wood.

Amphydasis prodromaria.—Common. March and April. Bickleigh Cann wood.

A. betularia.—Common. May and June. Bickleigh, Cann wood, Pennycomequick.

Hemerophila abruptaria.—Rare. May and August. Stoke.

Cleora Lichenaria.—Rare. July. Cann Barn, Cann wood.

Bearmia repandata.—Common. June and July. Hedgerows. I have many times taken the beautiful banded variety (*conversaria*) from larvæ found feeding on *Erica cinerea* (Heath).

B. rhomboidaria.—Common. June and July. Lanes and hedgerows.

B. roboraria. Rare. June and July. Once in Cann wood.

Tephrosia consonaria.—Common. May. Cann wood. Generally found at rest in fir trees.

S. crepuscularia.—Common. April. Bickleigh, Cann wood, Shaugh.

T. extersaria.—Not common. June. Cann quarry and wood, Ivy bridge, Maristow.

T. punctulata.—Rare. May. Bickleigh vale, Boringdon wood.

ENEMIES TO FIELD AND GARDEN CROPS IV.

GRASS LAND.

By S. L. MOSLEY.

The enemy to grass land, so far as insects are concerned, has, at anyrate during the past few years, been the common "leather jackets" as the larva of the crane fly or daddy long-legs is generally called by

country people. In almost every county in Britain the excessive abundance of this insect has been noticed more or less. In some districts the insects have been so numerous as to become a positive nuisance, filling windows, getting into milk bowls, treacle pots; and if anyone walked over grass land or newly mown hay, the pests would come buzzing in his face. In several of the parts in this neighbourhood I have noticed that this insect has been carrying on its destruction. Here and there large patches of brown withered grass might be seen. The larvæ having eaten the roots, the tops die and become withered and scorched by the sun. In some places the larvæ were so numerous that a score might be counted in a square foot of grass land. These grubs seem partial to flat damp land, and on that account good drainage ought to have a beneficial effect. All insectivorous birds and animals should be encouraged in such places, thrushes, rooks, partridges, and birds of that class destroy large quantities. On page 339, Vol. I, of the *Young Naturalist*, will be found a note referring to the destruction of crane flies by rooks, and in the course of three or four days, many thousands of crane flies must have been destroyed by them on that occasion. Starlings are also very useful in devouring this and other larvæ, even in the winter months these birds manage to find larvæ, as will be seen by a note by Mr. Wheeldon which will be found on another page. In Nottinghamshire, where much of the land is pasture, I have seen a flock of Starlings that on a rough estimate must have contained 50,000 to 100,000, and if we say that each bird on an average would devour five grubs per day during the Summer months, the quantity of caterpillars destroyed by them must be something enormous, and an appalling spectacle to the Entomologist. Shrews and field-mice also destroy large quantities, and the toad and some other reptiles do their share towards the destruction of these tiresome pests.

Among the artificial methods of getting rid of these grubs, or of lessening their numbers, common salt or any of the saline preparations seem to be partially effective; and on farms near the coast, sea-weed, if used as a manure will have a beneficial effect, and it has the additional advantage of costing nothing, except the expense of carting away. But the very best method of guarding against such attacks is to pay some attention to natural history and learn to distinguish those birds and animals which serve to keep the enemy in check, and for this reason every school should have a person able to instruct the rising generation in those useful truths, and then, in time, we should not find farmers and gardeners destroying their very best friends and preserving their enemies as is now sometimes the case and I think there is every reason to believe that this will be the case sometime. The study of natural history is gaining ground and people are beginning to see and admit its advantages.

There are several other enemies to grass land, but these will be mentioned in a future paper.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

19 { AURINIA, *Rott.* } Plate 10, Fig. 3.
{ ARTEMIS, *S. V.* }

The Greasy Fritillary.

ARTEMIS, W. V., *Artemis*, the Greek name for Diana." A.L.

Imago.—Plate 10, Fig. 3. Straw color, with the wing rays and several wavy bands black. A reddish band near the hind margin, and a few reddish spots in other parts of the wing. Underside forewing fulvous, with the wing rays, and the black bands of the upperside showing as a darker shade of fulvous only. The tip of the wing paler. Hindwing alternately banded with red and



Pyrameis cardui, (1).
 „ *Atalanta*, (2).
Vanessa io, (3).
 „ *Antiopa*, (4).



straw color, the outer band of red, having a row of yellow spots with black centres. These bands are divided from each other by thin black lines. The underside has rather a greasy appearance, whence the common name.

Larva.—Plate 10, Fig. 3a. Black with numerous white dots, in three not very clearly defined rows, head and legs black, claspers smoke colored. Besides the spines, there is a black bristle in the centre of each white dot. The spines are branched, and most numerous from the fifth segment. (We are indebted to Mr. Dawson, of Carlisle, for the larva from which our figure was taken.)

Pupa.—Short and stumpy, pale stone color, turning brighter as the time of emergence approaches, when the red and black markings may be seen through the pupa skin.

Food Plants.—The larva is generally understood to feed on the Devil's-bit Scabious (*Scabiosa succisa*) but other plants are named by authors, though we do not know on what authority, viz. Field Scabious (*Scabiosa arvensis*.) Foxglove (*Digitalis purpurea*.) Wood-sage (*Teucrium Scorodonia*) and Plantain (*Plantago*).

Times of appearance.—The imago is to be found from the middle of May till the latter end of June or sometimes rather later in more northern localities. We have taken it in fine condition in the first week in July, near Castle Eden Dene. The eggs are deposited in batches on the underside of the leaves of the food plant. The larva are gregarious when first hatched, and draw the leaves down and together, while they live under shelter of the tent thus formed, and devour the underside of the leaves only. They feed but slowly during summer, and pass the winter low down among the leaves of the food plant, or other herbage, which are drawn together as described. On the approach of warmer weather they leave their hybernaculum, and now feed quite exposed, being apparently as fond of the rays of the sun as the others of the genus. When full fed they seek the

underside of a leaf, or similar shelter for their final change. They are full fed from the middle to the end of April.

Habitat.—The Greasy Fritillary frequents damp meadows, or similar places when the Devil's-bit scabious grows. Where it occurs it is often exceedingly local, frequenting perhaps one corner only of a field, and often changing its head quarters, quite disappearing from the place where it abounded one year, and being as abundant the next year in another spot not far away. It occurs all over England, and also both in Scotland and Ireland. It is generally distributed over Northern Europe and Siberia, but does not occur in the polar regions. It scarcely reaches the countries bordering on the Mediterranean, though one variety occurs in Turkey, and another in Spain (Andalusia) and in Barbary in Africa.

Variation.—*Artemis* varies more generally than any other British butterfly, and though its range of variation is restricted by the three colors of the type, it is surprising what changes of appearance are produced. We are inclined to the opinion that while tolerably uniform in any one locality, most local races are distinctly different from others, and if a large enough collection were made of British specimens, an arrangement by appearance would also be found to be an arrangement by locality. The Irish specimens, *Hibernica*, Birchall, are the most beautiful, the colors contrasting more, the pale shade being paler than the type, the red bands and spots being brighter red, and the black marks being deeper black. The Scotch form, *Scotica*, is smaller, scarcely so densely scaled, the red and yellow marks not so distinctly different, and the black, duller in hue. Both this and the Irish form often have the inner half of the red band near the hind margin, pale straw color. In the north of England the insect is like the Scotch form, but as we approach the south the specimens are larger, the red and yellow markings still nearer each other in shade, and the black

marks and veins are browner. The variety *Provincialis*, Boisd., occurs in the south of France, &c., and is a large insect with scarcely any perceptible difference between the red and yellow bands, the divisions between them and the wing rays being brownish black. The French type differs considerably from the south of England form, but these differences, though clear to the eye, are very difficult to describe in words. *Merope*, Prun., is an alpine form and approaches the Scotch or North of England specimens, but it is much less densely scaled and has a semi-transparent look, sometimes it is all black and straw color, except the outer red band on the hind wing. The variety *Sibirica*, Staud., occurring in Siberia, differs from most northern specimens, for it is paler than any other, while northern forms are generally dark. *Sibirica*, Staud., is the same as *Desfontainesii*, Eversin. The Spanish and African form is called *Desfontainii*, Godt., and is the same as *Desfontainesii*, Boisd., and H. S. It is more uniformly fulvous than any other. The Turkish specimens are paler on the under, and more varied on the upper side, and are called *orientalis*, H. S. Besides these varieties, all of which are well defined, and deserving distinctive names, are several aberrations which must be very briefly noticed. Specimens occur not unfrequently with little or no black on the underside, while Dr. Gill has one with the upper side quite obscured with smoky black. Some vary in the under side by being more or less greasy looking, the Irish specimens being much less so than the Scotch, or any other form we have seen.

Allied species.—Though all the members of the genus have a strong family likeness, the species known as *Cynthia* Hb., is that most nearly allied to *Artemis*. The females of *Cynthia*, though scarcely so bright-looking, might almost pass for the var. *Hybernica*. In the males the pale straw colored marks are changed to pure white. The resemblance is all the greater for *Cynthia*

has the black dots on the red band, near the hind margin of the hind wing, that are so characteristic of *Artemis*. *Cynthia* occurs only in the higher Alps, and might readily pass for an extreme local form of *Artemis*. We would note, however, that the larva is said to be very different. Altogether *Artemis* is one of the most interesting and instructive species, and well deserving careful study.

Parasites.—Mr. Newman states that nine out of ten of his larvæ were infested with a *microgaster*, varying from ten to twenty-six in each larva. They emerged in similar manner to the well-known parasite of *Pieris brassicae*, spinning small silken cocoons outside. Probably these were the small species figured, *Microgaster perspicans*, which was bred from the larva by Mr. Bairstow, of Huddersfield.

Note.—Though this insect is best known in this country by the name we have used, it is called *Aurinia*, Rott., on the continent, the latter name having priority by one year, and it would be well if this name were adopted generally by the British writers.

THE FOUR SEASONS:

A Story from the Book of Nature.

By LUCY FERN.

Chap. II.

JOHN BRUMMET AND SPRING.

The young man, as we have already seen, is pale, rather worn and slim. What is the cause of this? He was born a weakly-constituted child, and though his parents had used to the best advantage the little knowledge they possessed, in order to improve his health; yet that knowledge had been gathered up in scraps, for in their younger days there were few schools, and few children were sent to them, and those that did go might almost as well have stayed at home for what real instruction they received. Our friend, the

young man, when a child was often sick, and sometimes the sickness was of long duration, but his mother was kind and loving, and when anything ailed him she always tended him with her best care. Once he was very low. He had been ill for months, and had been several days and never tasted food. But in time the tender care of his parents brought him round again to a state of comparative health. As he grew up to boyhood his taste seemed to tend to a literary direction, and any book or paper which fell in his way was eagerly perused and thought over. Even his dreams were of books and learning, and as years passed on he became connected with Sunday schools, debating classes, and other institutions of an intellectual kind. He, in short, stuck too close to one class of work, his constitution demanded exercise in the wooded country, and less close application to book study. When age demanded that he should find some kind of manly employment, books were still his uppermost thought. He obtained a situation as book-keeper, but, as another misfortune, the office where he had to do his work, and where he of course spent the greater part of the day, was in a cellar beneath the ground floor. Sometimes, for a few fleeting moments, a happy sunbeam would shed its refulgent ray through one of the small window panes or gratings; but it was only a momentary token of the bright July sky, the verdant fields and the sweet song of warblers that existed elsewhere. But to him it was no grief to be shut up there, nay, it was his pleasure, and, without knowing it, he was taking days from off the end of his life, Morn, noon, and night, in passing from his house to the office, and from the office to his house, he almost invariably would have a book or a newspaper, and he became so habituated to it that he could thread his way among the people, and go about his business without ever taking his eyes from the page. His name was JOHN BRUMMET.

And now let us return to the fair young female we saw with him at the garden gate.

She is busy trimming the flowers in the garden, and the two younger girls are assisting her to make them beautiful. Her name is SPRING; she comes every year to spend three months in this delightful place, and when she comes a new life seems given to all around. She is so amiable, so kind, that everyone seems inspired when she is there. She always comes on the 21st of March, and for some years John had watched for her coming with great anxiety. Through the long dark days he had constantly thought of her, and the time seemed to get on so slowly, it seemed as if she would never come. In truth he loved her, and he to her had become something more than a mere friend. Her two sisters always came with her, the two that are now with her in the garden: one of them we shall know as SUNSHINE, and the other as SHOWER.

SPRING was fond of Nature, she loved to ramble, in the months of April and May, through the woods and fields, to watch the buds peep from the ends of branches, or up from the earth, and expand into beautiful leaves and flowers. Her voice was that of the sweetest music, and her song was the signal for merriment throughout the animated world. Indeed, she was a delightful creature, and admired by everybody with whom she came in contact.

"Say, ye that know, ye who have felt and seen,
 SPRING morning smiles, and soul enlivening
 green,
 Say, did ye give the thrilling transport way?
 Did your eyes brighten when young lambs at
 play
 Leap'd o'er your path with animated pride?
 Or gaz'd in merry clusters by your side?"

A walk with SPRING was something never to be forgotten. Every step had a new joy, every flower, or bird, or moss, or plant brought from her lips a new story, full of life and interest, and clothed in words of the kindest friendship, and whether accompanied by SUNSHINE or SHOWER, they too had the same kindly life-giving disposition.

(To be continued)

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A Penny Weekly Magazine of Natural History.

No. 59.

DECEMBER 11TH, 1880.

VOL. 2.

NOMENCLATURE.

A YOUNG friend asked on Saturday why we recommended the adoption by British Entomologists of the Continental name *Aurinia*, for the Greasy Fritillary, instead of advising them to use our well-known name of *Artemis*. He thought it a pity to give up a name every one knew in England, and a shame if we had to use a foreign name instead. Why should we give in to Germany? The fly sitting on the box of the coach thought itself of immense importance, when so very much noise and fuss were made, in conveying it from one place to another. So we Britons have the idea that science was made for us, and that all matters should be looked at from our insular stand-point.

We always believe that when one asks, there are a score wanting to ask, and a hundred who would be glad to know, if the idea occurred to them. We therefore take the present opportunity of saying a few words to our young readers on Nomenclature. A popular Trio in the Opera H.M.S. Pinafore begins, "Never mind the why

and wherefore," but in science "the why and wherefore" are the most important things there are to "mind." It is necessary, in order to explain "why" we advise the name *Artemis* to be dropped, and that of *Aurinia* substituted, to give some little particulars, with reference to our mode of naming the various animals, plants, &c. Before the present system of double names was invented, most perfect confusion existed, but by arranging the various species in Kingdoms, Families, Genera, &c., all was brought to order. Each species was given a name of its own—the specific name. It belonged to a certain genus, from which it took its family name, and thus each insect, or other animal, got its two names, exactly as our mutual friend, John Smith, has two. The only difference between the system on which animals are named, and that by which we are named ourselves, being, that in the one case the FAMILY name comes first, and in the other the SPECIFIC. Of course there is this additional difference, that with ourselves the *individuals* are named, and not the *species* only, as in the other. Now it is very clear that

placing the family name first is an advantage, for with reference to ourselves we always adopt that method, when we want to classify the names. In a Directory, in the Index to a Merchant's Ledger, in our own List of Contributors, we place the family name first, and the specific (or sur-)name afterwards. Even if we were to give a list of animals in an index, under their English names, we would do the same. We may say "The Greasy Fritillary," or "The Heath Fritillary," but if drawing up an index, would place them all under F

Fritillary Glanville

„ Greasy

„ Heath

exactly as if their scientific names were used

Melitæa Athalia

„ Aurinia—Artemis

„ Cinxia,

Now it must be remembered that the second name belongs exclusively to the species, the first is common to the family; as with ourselves, the first belongs to the individual, and the latter to the family. We expect we have made this clear enough.

The object of having names at all, is, of course, that others may know what is meant when any particular species is spoken of. That when John Smith is named, no one shall imagine Tom Jones is intended. If we use the name *Artemis*, and everyone else does the same, that name answers the desired purpose—everyone knows what is meant. But if some use the name

Artemis and others *Aurinia*, and neither knows that both names refer to the same species, misunderstanding and confusion necessarily occur. Now *Aurinia* is a species that occurs elsewhere than in Britain, and we will suppose that a British Entomologist is describing the species for the first time, with the idea that it was an entirely new insect. After describing it he gives it the name *Artemis*; and if he was right, in supposing that it was a new species, the name *Artemis* would be a good name. By and bye it is discovered that the same butterfly had been taken in France, or Germany, some years before it was taken here; and that a French or German Entomologist, had described it under the name *Aurinia*, when it was first found there. *Aurinia* has been used in those countries, and *Artemis* in this, for several years before it was known that the insect was the same. What shall be done in such a case? Are we to go on calling ours *Artemis*, while it would be called *Aurinia* elsewhere? or shall we abandon our name and adopt theirs? There are many of us like our young friend, who would think it "a shame" for us to yield, and adopt a "foreign name." But science is cosmopolitan, and Nature does not recognise the limits of Political Geography. It is necessary, therefore, to have a general law, that will apply equally in all cases, and not consider any insular or national prejudice. All must be bound by such a law, for it is for the advantage of all. The law that has

been adopted is a simple one, that the earliest *Published* name and description shall have priority over all others. The naturalist who makes discoveries, and keeps them to himself, does not deserve honor, and none is given him. He who hastens to communicate, what he knows to the world, is deserving, and shall have what he deserves. Hence the question between *Artemis* and *Aurinia* is simply this. Which name has priority? Which name was first given to the world, and we find that *Aurinia* was first used in 1775, while *Artemis* was not used till 1776. Therefore *Aurinia* has priority by one year, and should be adopted.

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TO CORRESPONDENTS.

J. W. D., BOLTON. AND OTHERS.—Thanks for your kind words of approval of our Magazine. We hope we shall not be long before we are able to place the advertisements, &c., on a cover. If each one of our Subscribers could get another we would do this at once. Try!

Part I of "Birds and Eggs" is now ready and we will send a copy to anyone who can procure us some orders.

CORRESPONDENCE.

SIRS,—I hope you will continue to insist on the importance of making local collections and local lists branches of Natural History. We are here wanting a purely Local Museum to represent the Fauna and Flora of our district. In my humble opinion there should be one general museum as good as it can be made for the whole of the North-eastern counties—say at Manchester—and all foreign specimens of any value should go there. For a large town like Huddersfield there might be a collection of Typical forms for educational purposes, but there should certainly be one to illustrate the natural history of the neighbourhood. The laws that govern the distribution of species are very obscure, and can only be got at by many naturalists in different districts working to the same end. An illustration of the necessity for working a district closely has come before me lately. In my garden at Colwyn Bay *Epunda Nigra*, which I have never taken, or heard of being taken, in any other part of our district (though on the Birkenhead side it has been well worked), is not only generally common, but this Autumn was absolutely the commonest species of moth at sugar, on the two occasions on which I tried. On one of these it was actually in the proportion of 4 to 1 to any other species.—Yours truly,

ALFRED O. WALKER, (F.L.S.,) Chester.

Nov. 29.

NOTES, CAPTURES, &C.,

NIGHT HERON IN ESSEX.—A female specimen of the Night Heron (*Nycticorax griseus*) was shot at Dovercourt, on the 29th November last, it is in the immature or spotted plumage and weighed 1 lb 11 oz.—F. KERRY, Harwich.

ABRAXAS GROSSULARIATA IN NOVEMBER.—Mr. C. S. Gregson, of Liverpool, has recently sent us some specimens of *Abraxas grossulariata* bred in November. He promises a note upon the subject, which will, no doubt, be very interesting.

COLEOPTERA AT YORK.—Taking the advice of my friend Mr. Gregson, that "work wins," I had the good fortune to take (last Sunday morning, 28th Nov.) two specimens, male and female, of that fine insect, *Chlaenius nigricornis*, on Fulfare Ings, in profusion. I also took *Anchomenus junceus-farmupunctatus*, *Selpha atrata*, and about 10 *Staphylinus erythropterus*, a very fine *Brachalytrous* insect, all at tree roots, on the edge of the flooded fields there.—JOHN H. SMEDLEY, Fossgate, York.

BRITISH BIRDS; THEIR
NESTS AND EGGS.

S. L. MOSLEY.

Genus II,—Pandion, Savigny.

PANDION.—"The Greek name of a hero changed into a bird of prey."—Morris.

Again, only one species of this genus inhabits Britain. In size it is less than the Eagles. The wings are large and rounded, the second and third quill feathers being the longest. The legs are short and thick and the tarsus covered with rough scales. The toes are similarly clothed, and the under surface is set with pointed scales which assist in holding its slippery prey. The outer toe is longer than the inner ones, and can be turned sideways like that of the owl.

3. OSPREY.

Pandion haliaetus, Linn.

Fish hawk, (America).

Mullet hawk, (S. of England).

Fish luse, (Sweden).

Tschiftscha, (Lapland).

Aquila plumba, (Italy).

Halasääski, (East Bothnia).

HALIAETUS.—*Halus* (Gr.) marine; *aëtus* (Gr.) eagle.

Size.—Length of male about two feet, expanse a little over five feet. A female killed in Staffordshire by Mr. F. Bond, F.Z.S., on October 22nd, 1834, measured 6 ft. 7 in. from tip to tip.

Plumage.—The adult male has the bill

bluish black; cere, blue grey; eye, yellow. In a specimen in Mr. James Varley's collection, of Huddersfield, from which the figure is taken, the upper part of the head, chin, and under parts of the body are white with a slight tint of yellow in places. Two brown lines pass from the bill to behind the head, where the feathers are elongated, and can in the living bird be raised at pleasure into a kind of crest. Back and wing coverts dark brown. The primaries are nearly black, and extend a little beyond the tail. The tail is barred above with two shades of brown, and underneath the bars are indicated by pale brown on a white ground. The legs are bluish, and are feathered in front slightly below the knee.

THE FEMALE is similar, but larger, and the white on the head not so clear.

IMMATURE birds have the bill black, and the whole of the plumage much variegated. The feathers of the head are brown, margined with paler color, the nape not becoming clear white till the third or fourth year. Young birds vary a good deal in the markings of the upper parts.

Note.—When ascending in the air the Osprey is said to make a kind of crackling noise, which often develops into a scream when the bird is about to descend.

Flight.—The flight of this species is slow and heavy, yet easy. When it leaves its nest it generally sails off in a straight line for its fishing ground, where it wheels round in graceful evolutions, sometimes ascending to a great height. When it perceives a fish it rapidly descends, hence the Italian name *Aquila plumba* (Leaden Eagle). Occasionally it will check its course in mid-air, and hover like the Kestrel, no doubt this is when the fish has escaped from observation. Should the same fish, or another, again appear, the descent is continued, and the bird has often to plunge completely beneath the surface of the water in order to capture its prey. It emerges in a few seconds, and, shaking the water from its plumage, carries the cap-

tured fish to its nest, or to some tree, or rocky prominence to devour. The Osprey seldom alights on the ground, and when it does so, its movements are ungainly, on account of the shortness of its legs.

Migration.—The Osprey is a migratory bird, moving southward on the approach of winter, and returning northward in the spring to breed. In Britain it breeds in the north, and when specimens are obtained in the south it is generally in the autumn or winter. In America, where the bird is very common, they reach the coast of New York and New Jersey about the 21st of March, moving southward again about the 22nd of September.

Food.—The food of this species appears to be exclusively fish, which it captures from either the sea or fresh-water. Some authors state that it will occasionally attack birds, such as water fowl, but probably this is only when driven to do so by excessive hunger. The American fishermen hail with pleasure the appearance of the Osprey in the spring, as it serves to denote the appearance of shoals of herring and other kinds of fish, to which the birds serves them as a guide, and for this reason it is protected by common consent.

IN CONFINEMENT it must be fed on fish, and must have a pond of water where it can wash.

Habitat.—In Britain the breeding haunts of the Osprey are confined to the Highlands of Scotland, and sparingly to some portions of Ireland. Formerly it used to breed on the coast of Devonshire. Stray specimens are occasionally killed in various parts of England. One is recorded in White's "Natural History of Selborne," and several others are mentioned in "Letters of Rusticus,"

ABROAD this bird may be found throughout Europe, and is also met with in Africa, and the northern portion of Asia. In North America it is a common species, in some places breeding in colonies, as many as thirty

or forty pairs building their nests at the same place. This union is, no doubt, caused partly by the attacks to which the Osprey is subject from the White-headed Eagle, which robs it of its prey after it has captured it, and as the Osprey has been known to unite in bands to drive the eagles away, they probably keep together for that purpose.

Nest.—The nest of the Osprey is never far from some sheet of water, either the sea or an inland lake. It is placed in a tree, on some rocky pinnacle, or on the topmost part of some old deserted ruin. Most of the Highland Lochs have at one time or other been graced by the presence of an Osprey's nest. It is an early breeder, commencing to build in March or the beginning of April. The nest is an immense pile of sticks, some of which are of considerable thickness, with softer material, such as sea-weed, grass, or turf for the inside; unless the birds are disturbed the same nest is made use of year after year, and as it is repaired, and additions made to it every year, in time it becomes large enough for the materials to fill an ordinary sized cart. It is not unusual to find the nests of smaller birds built among the sticks which compose the Osprey's nest.

Eggs.—Three eggs are generally laid, and should be looked for during the latter half of May. They are of a yellowish white, more or less spotted with dark purplish brown, forming blotches, or a zone, or completely covering altogether the large end. Two of the figures (pl. ii, fig. 1 and 2) are taken from specimens received by a collector in this neighbourhood from the late J. H. Dunn, of Stromness.

VARIETIES sometimes occur with the spot-color almost or entirely covering the ground, and the egg then appears of different shades of red-brown. Such a variety is admirably figured in "*OOTHICA WOOLYANA*," from a specimen taken in East Bothnia, in 1854, which I have taken the liberty to copy into this work (pl. iii, fig. 3). The eggs of this species are very variable.

THE FOUR SEASONS:

A Story from the Book of Nature.

By LUCY FERN.

Chap. III.

A WALK TO THE FOREST.

"Come," says Spring to her two sisters, who were busy with her in the garden, "let us take a walk up into the forest, the wind is rather chilly, but the sun is breaking out, and it will be warmer in a little while, we shall take no harm on that account, and a walk in the morning air is bracing and healthful. Hear! the lark has begun to sing, and the missel thrush has been tuning his notes for some weeks, yonder is one sitting on the very topmost branch of the tree, pouring forth his sweet melody," and so saying the three at once began to prepare, and were soon strolling across the heath which led to the forest.

"Here, look along this bank," said one of the young girls, "what pretty yellow flowers! they all come up out of the earth, and not a leaf to be seen anywhere, how curious!"

"Yes," answered SPRING, "I know all about those, I have often seen them in similar situations, the plant is called Coltsfoot, and the leaves will come up afterwards, when the flowers are beginning to die down. But see, here is one with its head drooping, as though it were sickly, what is the cause of that, think you? Dig down to the root, and you will see," and, scraping the earth away, they found that the thick root-stem had been hollowed out by a small pink larva, and taking it in her hand SPRING explained that this little caterpillar had eaten the inside of the stem, which caused the flower to droop in the manner it did. The caterpillar would produce a beautiful little moth, known to entomologists by the name of *Halonota Brunnichiana*. "But see, here is another of these flowers, with the petals drawn together by a

silken web. I will pluck the flower and stem, and split the latter open," and so doing a little fat greyish larva fell into her hand. "Now you see this is another kind, let us take it home, and you will see it will produce a moth quite different from the other. Its wings will be cleft into separate plumes, and its name is as ugly as the moth is beautiful, if I tell it you you will forget it in ten minutes, but I will try you, it is *Pterophorus trigonodactylus*."

"Pity a poor ho's, till I've gone for t' doctor, lass. O yes, I can think of that," said SUNSHINE, with a smile.

Passing along, a brimstone butterfly fluttered across their path, and SPRING explained that probably it had just awoke from a long, long sleep. "It has slept ever since last October in some snug out-of-the-way place, perhaps in one of those great hollow trees, which are so old that their insides have decayed, and crumbled away, and now the first warm days have roused it from its slumbers, and it is now on its way to seek a partner, after which it will resort to some buckthorn bush, where it will deposit its eggs."

"How old do you think those trees are?" asked SUNSHINE, "see, here is one which all three of us could not reach round if joined hand in hand; it is hollow, and indeed there is a doorway on one side, let us go in, and see what it is like within." Inside the three found comfortable standing room, it was rather dark, but if they could only have seen above their heads they might have been able to discover several bats suspended by their hind legs, and their heads hanging down, fast asleep.

"Well, I should think that this tree at the very least is 200 years old, but we cannot tell. If it were not hollow, and we were to saw it across the stem, and polish the sawn surface, we could tell pretty nearly how old it is. We should see a series of rings, and if we counted the number of these rings correctly we should get the number of years the tree has been growing. Every year, you see, the bark

loosens from the wood, and the sap flows up, and makes a deposit of new wood, which forms one ring; the next year another deposit is made, which forms another ring. If we only understood the growth of these rings, no doubt many important lessons might be learned from them. For instance you would be surprised if from the study of these rings I could tell you that one season a hundred years ago was particularly wet or dry, yet there is no doubt that trees make more wood, that is, leave a thicker deposit, when the summer is wet than they do when it is dry. Most trees and plants grow in this way, that is by adding to the outside, and these are called *exogenous* plants, from two Greek words—*exo* without, and *gennao* I produce. Others grow from the inside, and are called *endogenous* plants, from the Greek *endon* within, and *gennao* I produce. This latter class may generally be known by the veins of the leaves running parallel to each other, like grass, while the exogens have diverging veins like this oak tree. And now," continued SPRING, "I am going to sketch this scene which you see before us," and she took from her bag a small sketch block, and a box of colors, and sat down on one of the large rough roots of the sturdy old oak, that bared themselves above the earth.

"And what shall we do?" enquired the other two.

"I do wish we had brought Aunt Judy's brandy bottle to warm us up, don't you Spring."

"No indeed, I do not, and if you want warming I can tell you how to do it without Aunt Judy's brandy bottle. Run down this hedge side to the bottom, then turn on the lane a little way and you will find a spring of crystal water, take a good draught, and then run back to me. Now be sure to run, don't loiter, but run," and the two set off in the direction SPRING had instructed them while she set to work and painted the glowing scene.

(To be continued.)

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 60.

DECEMBER 18TH, 1880.

VOL. 2.

NOMENCLATURE.

Second Paper.

IN our paper last week, on this subject we discussed the law of priority, but before our readers can fully understand Nomenclature, we must explain the troublesome and vexatious subject of SYNONYMY. Our young friends will have observed certain letters following scientific names—L., or Linn.; S.V.; Stand.; and so on. These are well understood contractions, for the name of the author, by whom the species were described under the name in question. *Machaon*, Linn., means that the species *Machaon* was first described and named by Linné. It is an insect that has been fortunate enough never to have had any other name. *Edusa*, Fabr., means that the species was described and named by Fabricius, a very eminent Danish Entomologist, who died at the beginning of the present century. *EDUSA* was described under this name in a work published in 1787, and several subsequent writers refer to the species under the same name. It happened,

however, that Fourcroy, a French writer, in a work on the Entomology of Paris, published in 1785, described the same insect under the name of *croceus*. The works of Fabricius were of great importance, and were well known, hence the name he used was adopted by almost everyone. Fourcroy's work having a more local character, would have a much less general circulation, and his name remained unrecognised. The law of priority however holds good, and in the latest Synonymic Catalogue of Butterflies, the species stands,

C. Croceus, Fourcr., 1785.

Edusa, Fabr., 1787.

Much complaint is made at times about "Closet Naturalists" continually changing names of species, and those who have used *Edusa* for a quarter of a century will find it a trouble to adopt the older one of *Croceus*. But when once we get the right name it will be changed no more, and the process of transition from one to the other makes it easier. New Synonymic Catalogues are only published at long intervals. Limited as is our list of British Butterflies, some names have been changed

within our own time, and more are in process of transition. First the older name appears in a Synonymic Catalogue, such as that by Mr. W. F. Kirby. Then the two names are printed together in brackets, in our printed lists or journals, as we printed *Aurinia* and *Artemis* on page 86, or one is put after the other thus: *Aurinia—Artemis*, and after a time the name that has been used in error is dropped altogether, and becomes only a synonym. Thus *Blandina* has already disappeared from some of our printed lists, and the older name of *Medea* has taken its place. *Cassiope* has been replaced by *Epiphron*, and *Dispar* by *Hippothoe*, on the other hand *Icarus* is still bracketted with *Alexis*, *Minima* with *Alsus*, and so on. In time the right name will be universally adopted, and then all is easy.

A novice looking in a Synonymic Catalogue, at a species like *Aurinia* (*Artemis*) might almost be disheartened if he thought he had all this to learn, like a school-boy's lesson; this insect having had more than a dozen names given to it by one writer or another. But however troublesome synonymy may be to those who have to puzzle themselves with it, they would find it much more difficult to understand their study without it, and we believe the publication of Mr. Doubleday's Synonymic Catalogue of British Lepidoptera did more to assist British Entomologists (though it was only a list of names) than any other work that has been published. Our young readers will understand therefore that it is not at all

necessary that they should puzzle their brains over synonymy. Let them leave that to the "Closet Naturalists" if they like, they only need to understand the general principles of the system of naming species, and when they study any difficult or variable species they will find a good synonymic catalogue, and a proper understanding of it, a great help to them. Till they require that information, they need not distress themselves about the difficulties. As an illustration, we may refer to the synonymy of that variable species, *C. Davus*, the Heath Butterfly, with reference to the Books on Entomology, now in use in this country. In Stainton's Manual it is called *C. Davus* only, and is described as a variable species. In Newman's British Butterflies two descriptions are given, the form with few or no eyed spots being called *Davus*, and said to be the same as the species called *Typhon*, by Haworth, over which the name *Davus* of Fabricius had priority. The second species which has very distinct eyed spots is called *Rothliebii* and said to be the same as the *Davus* of Haworth but not of Fabricius. In Kirby's European Butterflies these are considered to be distinct species, and that with distinct eyes is called *Davus*; with indistinct eyes *Typhon*. Nowhere is very considerable confusion and yet it is very easily put right by a reference to the synonymy of the species, which shows also that other and earlier writers used other names. The explanation of the difficulties will be found below:

Typhon, Rott (1775) a general name for the species and including all the varieties.

Davus, Fab. (1777) also understood to include all the forms. These names are equal to the *Davus* of Stainton's Manual.

Var. a. *Philoxenus*, Esper. the form with large distinct eyes, which is the *Davus* of Kirby, and *Rothliebii* of Newman.

Var. b. *Laidon*, Bork. who figured the form with indistinct eyes in 1788. This is the same as the *Typhon* of Kirby, and *Davus* of Newman.

A reference to this will at once show exactly what is meant by the different writers whose works we have named.

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Subscriptions for Vol. 1, expired with number 53, renewals for Vol. 2, will be thankfully received. With 12 plates 6s., or with the same colored by hand, 8s.

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TO CORRESPONDENTS.

EXCHANGE CLUB.—All those who have decided to join this for the present season will please send their parcels and lists to J. E. Robson, Bellerby Terrace, West Hartlepool. They must be carriage paid, and if to be returned by post must contain a stamped addressed label. Care is requested in packing.

MAGAZINE CLUB.—If there are any more who desire to join this club they must please communicate at once, as it should commence on 1st Jan.; and until we know how many members there may be, no arrangements whatever can be made.

CORRESPONDENCE.

DEAR SIRS,—I have received the first part of the *Young Naturalist* series of Illustrated Handbooks of British Natural History," being Part I of "British Birds, their Nests and Eggs;" I am exceedingly pleased with it, and trust it will obtain a large circulation. To students of Ornithology, it will be especially valuable, while to the ordinary reader it will prove an interesting volume; for who is there that does not take pleasure in learning about the nature and habits of the birds he sees around him, even though he has not opportunity or inclination to devote much time to their study? The letterpress seems to give in plain simple language all that it is necessary to know of each species, but the special attraction of the book is in the illustrations, these are carefully drawn and lithographed, and the hand-coloring is admirably done, so that each picture, in the *Superior Edition* at least, is quite a work of art, while in the *Cheap Edition* the figures are carefully colored, and for all practical purposes are equal to the others, being only inferior from an artistic point of view. I cannot wish better for the work than that it may meet with the success it deserves.—Yours truly, HENRY T. ROBSON.
Stockton-on-Tees, December 6th, 1880.

EXCHANGE.

I will give a good return for any of the following in *pupæ*:—*Elpenor*, *Ligustri*, *B. quercus*, *Carpini*, *Fagi*, any of the *Notodonta*, *Piniperda*, *Capcicola*, &c.—H. THOMPSON, Gosford Street, Coventry.

NOTES, CAPTURES, &c.

DRAGON FLIES CAPTURED DURING THE PAST YEAR IN THE VICINITY OF PLYMOUTH.
—**Sympetrum siriolatum*, 19th September; *Platetrum depressum*, 26th June; **Orthetrum cærulescens*, 4th August; *Cordulegaster annulatus*, 4th August; **Æschna cyanea*, 31st July; **Calopteryx virgo*, 24th July; **Pyrrhodesoma minium*, 10th July; **Ischnura elegans*, 27th

June; **Agrion puella*, 19th July. I have duplicates of those marked *, which I should like to exchange for others not named in this list.—G. C. BIGNELL, 7. Clarence Place, Stonehouse, Plymouth.

ENTOMOLOGICAL EXAMINATIONS.

Again "John Peel" has sent us the best answer to our last question. Where are all our young entomologists, and what are they doing? We ought to have more competitors than we have.

REPLY.

THE COCKROACH, (*Blatta Orientalis*.)

Although often erroneously called the "Black Beetle." This insect has in reality no connection with the order *Coleoptera*, but is included in the order *Orthoptera*, amongst the Grasshoppers, Crickets, &c. The name *Orthoptera* signifies Straight-wings and is given to this order of insects on account of their inability to fold the wings cross-wise after the manner of the Beetles and Earwigs. The Cockroach is not a native of our Island, but it is not known from what country or at what time it was imported. The voracity of this insect is well-known, nothing seeming to come amiss to it. The following is an extract from a history of the Cockroach, by a naval surgeon: "Whilst Cockroaches partake largely of the common articles of diet in the ship's stores, they also rather like books, clothes, boots, soap, and corks. They are partial to lucifer matches and consider the edges of razors and amputating knives delicate eating. As to drink, they exhibit the same impartiality. Probably they do prefer wines and spirits, but they can nevertheless drink beer with a relish, and even suit themselves to circumstances and imbibe water, either pure water or mixed with soap; and if they cannot obtain wine, they will find a very good substitute in ink." This account shows that

the Cockroach is no less thirsty than hungry. Warmth, moisture, and darkness are the three essentials of Cockroach life, and it is on this account that they are so abundant in the lower part of the house, and but seldom in the upper rooms. Like many other insects the Cockroach has a habit of discharging from its mouth a dark colored fluid, which possesses a most disagreeable smell, and is one of the chief causes of the universal repugnance to it. The elytra or upper wings of the male are soft, leathery, and strongly veined; they are not used for flight, but merely as a protection to the delicate underwings; the female is apterous, *i.e.* wingless. The larva and pupa resemble the perfect insect in shape, but have no wings. When the insect first emerges from the pupa it is almost white, the darker hue being developed in a short time by the action of light. The eggs of the Cockroach are laid all together, enclosed in a hard, horny case, for which the scientific name is "*oötheca*," *i.e.* egg-purse. When the eggs are hatched this case splits down one side, and allows the occupants to escape. There is no doubt that it is a most disagreeable insect, but it must be admitted that it is also useful as a scavenger, and as it is seldom seen in perfectly dry and clean places, its very presence may generally be considered as a sign that it is needed. Many means have been tried for the extermination of Cockroaches, but all have proved more or less ineffectual. A hedgehog is an useful ally in the kitchen, as he is very partial to them as food, and pans of beer or water left on the floor at night will attract these thirsty insects, which tumbling in, in their attempts to drink, will be drowned in numbers.—JOHN PEEL.

In order to vary the matter as much as possible, and so give all an opportunity of sending in replies, we will now ask for the best paper on the Entomological work done by the writer in 1833. The papers must not exceed six sheets of note paper, and must be in our hands by January 1st.

LOCAL LISTS.

The Geometrina of Plymouth and vicinity.

(Continued from p. 35.)

By G. C. BIGNELL, M.E.S.

Gnophos obscurata.—Common. July and August. Hedge banks around Stoke, Whitsand Cliffs. Imago plentiful (July 10). Larva to be found only at night.

Pseudoterpna cytisaria.—Common. July. Plymbridge, Bickleigh vale, Shaugh, Ivy bridge.

Geometra papilionaria.—Not common. July. Field near Cemetery, Cann Wood.

Iodis lactearia.—Common. June. In and near woods.

Hemithea thymiararia.—Common. June and July. Bickleigh, Shaugh, Plymbridge.

Ephyra punctaria.—Common. May and August. Bickleigh, Cann Wood, Plymbridge.

E. trilinearia.—Rare. May and August. Bickleigh.

E. omicronaria.—Does not occur in the vicinity of Plymouth. I have taken it at Exeter and Teignmouth, where its food plant (Maple) grows abundantly. May and August.

Asthenia luteata.—Not common. June. Cann Wood, Bickleigh.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

20. ATHALIA. Plate 10, Fig. 4.

The Heath Fritillary.

ATHALIA, Esp., *Athalia*, the daughter of Ahab, king of Israel—heroine of Racine's tragedy, "*Athalie*."—A.L.

Imago.—Plate 10, Fig. 3, upper and underside. Fulvous similarly marked to the last species, but the black marks are broader,

and the row of dots on hind wing is wanting; the base of the wings is also often much suffused with black. Underside. Forewing, fulvous, with a few black marks. Hind wing, three straw-colored bands, divided by two fulvous bands, all bordered with black, and divided by the veins. There is a straw-colored spot in the fulvous band nearest the base as in the last species. Besides the absence of the distinct black spots so characteristic of the underside of *Cinxia*, the two species may be readily distinguished by the color of the paler bands, which is very much paler in *Cinxia* than in *Athalia*.

Larva.—Black, with white spots. The spines orange-colored, with white tips on the back, and all white at the sides, the spine bristles, head, and legs are black. Mr. Newman points out the protective resemblance of this larva to the flower of one of the food plants—the Narrow-leaved Plantain, and noticed that his specimens always crawled up the flowering stems in the middle of the day.

Pupa.—"Very short and obese, the color is creamy white, variegated with black and orange."—Newman.

Food Plants.—The narrow and broad leaved plantain (*Plantago lanceolata* and *major*), wood sage (*Teucrium scorodonia*), Germander speedwell (*Veronica chamaedryas*), cow wheat (*Melampyrum*), &c.

Times of Appearance.—The imago may be found during June and July. On the Continent it is said to fly from May to August. The larvæ hatch in about a fortnight after the eggs are laid, and after feeding for a short time hibernate at the roots of the food plants, till the following spring, when they feed up quickly. Like the last species they are fond of basking in the full rays of the sun.

Habitat.—Open places in woods, and heathy localities. In England it seems confined to the more southerly counties, and does not occur in Scotland. Mr. Birchall found it abundant at Killarney, in Ireland. It is spread generally over Europe, but only

occurs in the northern and western parts of Asia.

Variation.—*Athalia* varies much both on its upper and under surface. The upper surface varies by being suffused with black scales to a greater or less extent than in the normal form. In some specimens the wing is nearly all black, in others there is scarcely any black at all. The underside sometimes has the straw-color covering the greater part of the wing, while in others there is more black than usual, and it is impossible in words to convey an idea of the varied markings that occur. All these abnormal forms are very rare. There is quite a host of named varieties, but we doubt whether any of them are such forms as ought to have distinctive names, which, in our opinion should only be given to forms that occur with some regularity, either in special localities, or whenever the species is found. We find the following names in Dr. Staudinger's catalogue, *Corythalia*, Hb., *Navarina*, Selys., *Caucasica*, Stdr. All of which we believe are dark forms. *Tarquinus*, Curt., and *Orientalis*, Mèn., the latter having white spots on the underside, and may be a variety of *Aurelia*. Kirby also names *Melanina*, H.S., which, judging by the name, must also be a dark variety; *Ætheria*, Eversm., and *Ætherie*, Hubn., of which we know nothing. Besides these there is the var. *Eos*, of Haworth, which is in Steven's collection, and is said to be unique, but Mr. Bond has one very like it. The upperside has a dark border on the hind margin, and the inside of the wings suffused with the two colors, within the hind margin of the hind wings is a series of fulvous lunules, and a single fulvous lunule in the centre of each hind wing. The underside of the forewing has the black concentrated in the centre, and the hind wing has a broad pale band running across the underside. It was taken at Peckham, in June, 1803.

Parasites.—*Ichneumon culpator*, Schr. is said to have been bred from this species, but not so far as we know, in this country.

VISCUM ALBUM

(*The Mistletoe*).

By J. P. SOUTTER, Bishop Auckland.

"The damsel donned her kirtle sheen,
The hall was dressed with holly green,
Forth to the woods did merry-men go.
To gather in the mistletoe.
Then open wide the baron's hall,
To vassal, tenant, serf, and all."

At this festive season there are few plants more frequently met with, or better known by its presence, as a decoration in our houses, or by pictorial representation in our Christmas Annuals than the singularly curious and interesting Mistletoe, and yet perhaps there is no plant about which there is a greater amount of popular misconception. Most people have a vague idea that the mystic plant does not grow in the ground, but nine-tenths of our well-informed persons if asked to say where the Mistletoe grows, will promptly reply, on the Oak tree. Whereas so rare is its occurrence on the Oak, that all researches of eager botanists have only discovered 15 oaks in Britain bearing living Mistletoe plants at the present time. It is most frequently found on Apple trees, and more sparingly on Hawthorn, Lime, Poplar, &c. It is very local and eccentric in its distribution in England, being most abundant in the apple-producing counties of Gloucester, Worcester, and Hereford, and although it is not unfrequent in Kent and Sussex, it is almost entirely absent from Devon and Cornwall. It is very rare in Northumberland and Durham, and is not indigenous in Scotland, although it has been introduced, and seems to thrive well as far north as Morayshire. The Mistletoe is a vegetable parasite, that is, it grows upon another plant, and derives its nutriment from the juices of the plant on which it feeds. So fully has this parasitic habit been acquired by the Mistletoe that its seeds if sown in the ground will not germinate at all, hence the Ancients thought it was an excrescence from the tree on which it grew, and that although

it produced berries it could not be raised from seed. But more accurate research has proved that it is easily enough propagated by seeds. If the ripe berries are rubbed against the branch of a tree so as to break the skin, they readily adhere by the tough, tenacious, viscid juice which they contain, and in due time the seed will begin to grow, and the little rootlets soon penetrate the bark, and absorb nutriment from the ascending sap of the trees, which the young plant assimilates and appropriates for its own use. So greedily does it suck up these juices that if colored fluids are supplied to the tree, it will pass up unchanged into the tissue of the Mistletoe. It is also said that although the stem and leaves of the Mistletoe have not the power of absorbing fluids, yet if the branch on which it grows be cut off, and immersed in water, the Mistletoe will go on absorbing water by its roots, and will continue to live for a considerable time. A curious property of the seeds of Mistletoe is that whereas in the seeds of all other plants during the process of germination, in whatever position the seeds may be placed, the young rootlets always turn towards the centre of the earth, in the Mistletoe they turn towards the centre of the mass to which they are attached. Thus if placed upon the upper part of a branch they will turn downwards, if on the lower surface they turn upwards, and if on the side of a tree towards the centre of the trunk. Another peculiarity is that the seeds often contain two or three embryos, so that from one seed two or three separate young plants may be produced, this has also been observed in the seeds of the orange. In places where Mistletoe abounds the pearly white, waxen-like berries are eagerly eaten by various birds, especially thrushes, one species of which (*Turdus viscivorus*) derives its name from its predilection for the tempting fruit, and becomes an active agent in the dissemination of the plant, for the viscid berries often adhere tenaciously to their beaks, and in endeavouring to cleanse them by rubbing against the

branches of trees, as the manner of birds is, the seeds stick to the bark, from which new plants are ultimately developed. The berries furnish a very adhesive glue, from which bird lime is often made, and as it was formerly believed that the seeds of the Mistletoe had to be swallowed by the thrush, and voided with its excrement before they would grow, hence there is an old Latin proverb, "That the thrush shooteth destruction out of his own bowels," which has been freely rendered in English—

"The thrush when he defiles the bough,
Sows for himself the seeds of woe."

Although not immediately fatal to the tree on which it grows, yet by preying upon and intercepting the juice of the trees, and thus weakening its vitality, it tends to shorten the life of its host, so trees or branches on which it grows become enfeebled, and prematurely decay, although at first it seems to stimulate their fruit-bearing powers. Hence it is said to be looked on with comparative favor by the tenant, but with well-grounded aversion by the proprietor of an orchard. By the ancient Druids the Mistletoe was regarded as a sacred plant, that which grew on the oak being most highly esteemed, and many mystic rites were enacted at the new year when the Arch-Druid proceeded with much ceremony to cut the Mistletoe with a golden knife, it was carefully caught in a white woollen cloth, so as never to touch the ground, and after being blessed by the Highpriest it was distributed amongst the people, and by them hung up in their habitations, as they believe the spirits of the woods would linger amongst its evergreen branches whilst the forests were leafless, and in return for the shelter they would confer benefits upon the inmates. Doubtless this is the origin of the custom of decorating our houses with evergreens at Christmas, but the first beginnings of the popular practice of kissing under the mystic bough seems lost in obscurity.

(To be continued.)

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 61.

DECEMBER 25TH, 1880.

VOL. 2.

NOMENCLATURE.

Third Paper.

WE trust what has already been said has been made sufficiently clear to our readers. Before we leave the specific names we must make some allusion to their terminations. Any one looking over a list of species cannot but notice that in certain groups a large proportion of the names end with the same syllables. The names of *Pyralites* end in *alis*, *Crambites* in *illus*, *Tortrices* in *ana*, *Tinea* in *ella*, and so on. *Geometers* end in some in *aria*, in others partly in *aria* and partly in *ata*. There might be some advantages if all the names of a well-defined group could have an uniform termination; but in the present state of our knowledge this is not possible. Many leading naturalists never adopted the idea at all, while in other cases it has been attempted to carry it out to even greater length than we have named above, and to have distinctive terminations for very small groups. Thus, the yellow-winged *Noctuæ* have, most of them, names

ending in *ago*; *citrago*, *cerago*, *aurago*, &c.; even *C. zerampelina* having been called *centrago*; and in butterflies many of the genus *Danaï*s have the names ending in *ippus*, as *Chrysippus*, *Archippus*, &c., &c. We are not aware that any of these terminations have a special meaning, except in the plume moths *Pterophorina*, where the terminating syllables *dactylus*, mean, a plume, referring to the division of the wings into separate plumes. Thus, *Rhododactylus* is derived from *Rhodo*, Rose, *dactylus*, a plume, referring to the colour. *Parvidactylus* from *Parvus*, small; *dactylus*, a plume: referring to the size, and so on. But even in the plumes there have been very many departures from the uniformity of termination. Our readers will therefore understand that the termination of a name is really of no consequence, whatever may have been desired or thought by some. *Cratægata* or *Cratægaria* is the Brimstone moth; *Cervinata* or *Cervinaria* is the mallow moth; and *Marginata* is not necessarily the clouded border, for there is a *Noctua* of the same name.

Our younger readers who see what a

help to them an uniform termination of names might be may perhaps ask why it could not be adopted in all cases? We reply, the state of our knowledge at present forbids it. There are some things that we do know, though they may be few. We do know that *Pieris Brassicæ* is a butterfly; but what is *Uranus ripheus*? We do know that *Mamestra Brassicæ* is a noctua; but what of *Diloba cæruleocephala*? These are cases where no uniformity has been attempted, but others may be given. Stainton places *Sarrothripa revayana* first among the Tortrices, in which case the termination is appropriate. Dr. Staudinger places it first among the Bombyces, a group for which an uniform termination has never been attempted. Again, Stainton places the genus *Nola* as the sole representative of the family NOLIDÆ, among the Pyralites. Dr. Staudinger places it among the Bombyces, and in the family LITHOSIDÆ. Until doubtful points like these can be satisfactorily settled, no fixed uniformity of termination can be possible. As the spelling of words show something of their previous history; as the u in colour and honour, show that we have derived them from the Latin, through the French; so the termination of many names gives us something of the history of the past location of the species. For illustration we may take the genus *Nola*. The only species of this genus named by Linné is *cuculatella*, and by the termination it would appear to have been placed among the Tinea.

Several of the species *cristulalis*, *albulis*, &c., have names terminating in *alis*, given when they were considered to be Pyralites. We need not multiply examples.

There is one other point in reference to the law of priority that should have been named. When an author in describing a species gives a name that is already in use in the same group, the name is not retained, but another is given. Thus if one of our readers found a new white butterfly of the genus *Pieris*, and described it as a new species, giving it the name of *brassicæ*, the next writer would have the right to give it another name with *brassicæ* as a synonym only. The necessity for this is obvious. Indeed if it were possible, it would be better if every animal had a name borne by no other species, or at all events that each order had separate names for everyone of its members. This might have been done, but would entail too much change now, so that it is only required that the same name shall not be used in such case as may lead to confusion.

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NOTES, CAPTURES, &C.

HOOFOE AT HUDDERSFIELD.—A specimen of this rare British bird has lately come into my possession. It was killed several years ago at Meltham, about five miles from here, and so far as I am aware has not pre-

viously been recorded. This is the second specimen I have obtained which had been killed in this neighbourhood. I may also mention that a year or two ago I saw one at Morecambe which had been killed on the rigging of a ship there.—S. L. MOSLEY, Huddersfield.

VISCUM ALBUM

(*The Mistletoe*).

By J. P. SOUTTER, Bishop Auckland.

(Continued from page 55.)

The Mistletoe played an important part in the ancient Norse Mythology. By its means Balder the beautiful, the "whitest," and fairest of the Gods, was slain. His mother, Freya, had charmed him so that he was invulnerable to all created things which grew in fire, air, earth, or water, but in her incantation she had overlooked the humble parasitical Mistletoe. So when the assembled Gods were assailing him with all kinds of weapons, he smiled at their futile efforts, impregnably secure in his mother's blessing. Then Loki, the destroyer, who had wheedled the secret from the frail Freya, covertly put an arrow, formed of a branch of Mistletoe, into the hand of the blind God, Hoder, who threw it at random, when it smote, and slew, the Apollo of the North. So great was the grief of the Gods at the doleful disaster, that at their unanimous request, Balder was restored to life again, and the Mistletoe was given in charge of the Goddess of Love; hence it is an emblem of life, and not of death, and is now consecrated to festive frolics. Many mythical virtues have been attributed to the Mistletoe, thus a branch of it was necessary to a man becoming a magician, and the possessor was not only able to see ghosts, but to compel them to speak to him. In olden times the medical properties of the Mistletoe were much vaunted, but in these later days it has fallen sadly into disrepute. In

certain districts a twig is still worn round the necks of infants, to prevent pains and convulsions during teething, and it used to be esteemed a specific in epilepsy, or falling-sickness, and in apoplexy. The Mistletoe belongs to *Loranthaceæ*, an extensive Natural Order of parasitical plants, many having showy flowers, and luxuriating in a tropical temperature. The Mistletoe is the only representative in Britain, and its peculiar position as an "outlier" in our Flora gives rise to some interesting speculations on the geographical distribution of plants. A closely allied species (*Loranthus Europæus*) is very common in Southern Europe, where it grows exclusively on the oak. This has led certain people to suppose that it was the Mistletoe of the Druids, and as it is not now known as a British plant, a fanciful theory has been advanced, that so complete has been the collapse of the Druidical religion that even their sacred plant has been exterminated. I think no facts can be adduced in favour of so extravagant a hypothesis. When ancient Britain was largely covered with oak forests, the common *Viscum* was much more likely to occur on the oak than it is now, and that even then it was rare is evident from the careful search that had to be made for it. Whereas if it had been the *Loranthus* it would doubtless have been abundant. And science can scarcely admit of a plant having become extinct because of any purely speculative opinions regarding it. That the *Loranthus* was the Mistletoe of the Continental ancients is very likely, for Virgil sings:—

"In the depths of winter's snow
The parasitic Mistletoe;
Bursts with fresh bloom, and clothes anew
The smooth bare stems with saffron hue."

The berries of the *Loranthus* being yellow, whilst our Mistletoe bears pure white berries. When well-developed the Mistletoe becomes a compact bush as much as 5 or 6 feet in diameter although its growth is comparatively slow. The branches are curiously knotted and jointed, and divide with great regularity in a forked manner, two buds being formed

at the extremity of each branch, which develop into two branches the succeeding summer. The leaves are of a leathery texture, and yellowish-green color, are also in pairs, and being persistent give the plant its evergreen character. The flowers are produced in early spring, they are small and inconspicuous, appearing in twos or threes at the extremities, or in the forks of the branches. They are unisexual and diœcious, that is, the staminate and pistillate flowers are on different plants. The corolla is absent, and in the staminate flowers the anthers are curiously fixed on the four small ovate scales forming the calyx, they open by small pores to allow the pollen to escape. The pistillate flowers produce each a single berry containing a solitary seed. The name *Viscum* is the old Latin appellation of this plant in allusion to the viscid tenacious pulp of the berries, and *album* is from their white color. The common name Mistletoe, which has an endless variety of spellings, is derived by some from the old Saxon "mistel" different, and "tan" a twig, because it was a different kind of plant from that on which it grew, others maintain that it is from "mist," dung, literally the branching or twiggy dung-plant, and the same idea is perpetuated in its common name in various other countries, which has doubtless arisen from the supposed origin of the plant out of the excreta of birds, which has been already alluded to.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

Genus III, *Pyrameis* Hubn.

This is a small genus only numbering about a dozen species, and some authors do not recognize it, or only recognize one portion of it as deserving separation from the closely allied genus *Vanessa*. Besides the U shaped mark mentioned in our table, its members

may be known by being less angulated on the hind margin of the wings than those of the *Vanessa*. The antennæ too are more clubbed. While there are these differences (and other minor ones) in the perfect insects, the larvæ differ in a striking manner in their habits, those of *Pyrameis* being solitary, and often, as in *Atalanta* concealing themselves by drawing the edges of a leaf together. On the other hand the larvæ of the genus *Vanessa* are gregarious, the eggs being laid in batches and the whole of the larvæ from one batch remaining together throughout life. Mr. Doubleday points out some curious facts in relation to these insects which we regret we cannot quote at length. The most important passage is "I have dwelt particularly on the geographical distribution of this genus, so poor in species, yet so universally distributed, presenting two distinct sections, species of which are known to co-exist in almost every part of the world except the southern parts of Africa and America; never, except in Australia, presenting more than two species in the same district, and those generally of different sections."—As it [*P. cardui*] dies out, if I may use the expression, in the equatorial and southern parts of America, it is replaced first by one species, then by another, and if those species co-exist, one is sure to be rare, for this co-existence is only found in the very limits of their respective territories." (Doub. and West Genera of Diurnal Lepidoptera.)

Two species (of different sections) occur in Britain, which are very easily distinguished. Colour Black and pale fulvous. *P. CARDUI*,
" " and bright scarlet. *P. ATALANTA*

21. *CARDUI*. Linn. Pl. 11, Fig. 1.

The Painted Lady.

CARDUI, L., *Cardui*, feeds on Thistle (*Carduus Natus*). A. L.

Imago.—Plate 11, Fig. 1. Forewing pale fulvous with various black blotches, the tip all black except the U shaped row of white spots, Hindwing, similar in color to the fore-

wing but no white spots, three rows of black spots at the hind margin.

Larva.—The larva of *Cardui* varies from dark grey to black, young individuals being generally darkest. The spines are paler but the tips and branches are black. There are a number of warty spots of greyish yellow and scattered hairs all over it. The head is black and the legs and claspers generally a dull red.

Pupa.—Greyish ochreous in color, and marked and striped with brown and black, the prominence golden. In shape it resembles the others figured on plate II, and is suspended by the tail in the same way.

Food Plants.—Various species of Thistle. Nettle, Burdock and Mallow are also named, but we never found the larva on anything but the common field thistle (*Carduus Arvensis*.)

Times of appearance.—This species is one of the most uncertain of our British Butterflies. Sometimes it will scarcely be seen at all, or will disappear from a locality for many years. Then it will come in such countless swarms that Entomologists have not yet discovered a satisfactory mode of accounting for them. In an ordinary way the imago emerges in August or September, retires for the winter in October, to appear again in spring, but we have taken it so fine in June that we could scarcely believe it had been on the wing a couple of months in the previous year, yet it cannot well pass the winter in pupa. Some lepidoptera remain more than one winter in pupa, only a portion of a brood emerging, or the whole remaining over. When this occurs, the insect does not appear at an unusual time, but remains until its regular period of emergence the next season. Some species such as the small Eggar (*Eriogasta lanistris*) have been known to be as many as 10 years in pupa. The cause of this curious habit is not known, but in species that emerge in February, as does *E. lanestrus* it is easy to see that it is necessary for the protection of the race. Is it not possible that the same cause that operates to prevent

an insect emerging from pupa, at what may be called its proper time, may affect in a similar way insects in a state of hibernation, and that when the seasons are unsuitable, or whatever other adverse cause there may be, the hibernating insects, or most of them remain in a torpid state, for another year, or for more than one, and then when the circumstances are favourable, they appear in large numbers. This is not the place to argue out a theory of this kind, but the suggestion is made as a possible solution of the difficulty. *Cardui* pairs in spring, and the eggs are deposited singly on the food plant. The larva is almost as uncertain in its appearance as the imago. It has been found freely in July, and one observer, Mr. West, (See Entom. Vol. III, p. 363), noticed that none were to be seen between July 26 and September 16 when they again appeared freely. We have had them only half fed, quite late in November, when they died of starvation. We, of course, expected they would feed up, and did not expose them to the weather, which had we done, might have caused them to hibernate in this state. We shall have something to say on the subject when we have to speak of *V. C-album*, but we commend the species to the careful attention of our readers. Any observation made about the species is certain to be worthy of publication, and probably many observers must record all they know, before its history is thoroughly understood.

Habitat.—A most ubiquitous species. It occurs all over England, Ireland, and Scotland, and though a lover of open places rather than of sylvan shades, we have seen it flying freely to the flowers of the Wild Thyme (*Thymus serpyllum*) on a grassy slope in a wood. It is fond of alighting in dusty lanes, and moves its wings up and down, almost as though it were dusting itself, as skylarks and other birds do. Kirby gives The World (*Mundus*) as its range, and we have specimens both from India and South America that could not be distinguished from those occurring in this country.

Variation.—Varieties are rare. A very beautiful one in Mr. Vaughan's cabinet is figured in Mosley's "Illustrations of Varieties of British Lepidoptera," Vanessa, plate 3, fig. 3. A similar one from Mr. Ingall's collection is figured in Newman's British Butterflies, page 64. Another in Mr. Stevens' collection is figured in the *Entomologist*, vol. 7, page 345. In these the black is confined to the costa and tip of the forewing, and a row of paler rings appear on the hind margin of the hind wing. A variety without the white apical spots is in the collection, of the late Alfred Owen's of Maghull. Pale and dwarf specimens also occur sometimes, and an aberration in which the spots are confluent, has been called *Elymi*, Rhr., an Australian variety is also named, *Kershawii*, M'Coy. We do not know its distinguishing characteristics.

Parasites.—None known to us yet.

THE FOUR SEASONS:

A Story from the Book of Nature.

By LUCY FERN.

— — —
Chap. IV.

A BOTANICAL LESSON.

Before SPRING had finished her sketch the two girls were returning with faces as rosy as an evening sky. The run and the draught of crystal water had warmed them thoroughly, and ever after SUNSHINE and SHOWER might be seen chasing each other over the fields in order to drive away the chill.

"Do you know, Spring, we found a bird's nest, down in the lane, with four beautiful blue eggs spotted with black."

"Yes, it would be a thrush's, it is one of our earliest birds to build. In mild seasons I have often seen young ones by this time. Hark! yonder is one of the birds, how sweetly it sings! people in tropical countries would give anything to hear a bird sing like that; though their birds and insects beat

ours by far in color, yet they have nothing that can compare with our birds for song."

SHOWER taking up the sketch that was just finished, expressed a wish that she could paint like that, whereupon SPRING took her to task, and gave her a lecture upon the folly of wishing. "TRY" would learn anybody, he was not particular as to his pupils, but if she allowed "I CAN'T" to have his own way she would never learn to paint, nor anything else.

The three now returned home, and SPRING spent the greater part of the day in perfecting the little scene she had taken in the forest.

In the evening SPRING and JOHN had taken a walk along some of the beautiful woodland paths that abounded in the neighbourhood. They were returning, and had gathered a pretty bouquet of wild flowers, primroses, anemones, sweet violets, and the scentless purple ones, daisies with their petals touched with rosy, and other early gems, for she was always delighted to have the air of her room purified by the refreshing influence of flowers. In the garden a few snowdrops and crocuses were added, and the whole bunch was taken within, and arranged in a glass of water.

JOHN was beginning to feel interested in those objects which gave SPRING so much pleasure; he had learnt the first letter in the alphabet of that Great Book which she had read so attentively, and so well. SPRING broke a momentary silence.

"John. Is not gathering flowers, and studying their habits and structure, a delightful exercise? There are many exercises which, as such are good for the body, but they are of no use to the mind. If you only knew how much pleasure I have derived from the study of nature I think you would not be long in sharing with me in those tastes. The study of nature, JOHN, has to me been one of the greatest pleasures of my life, when all things else have failed, this has never failed; it has taken me into the pleasantest of places. and among the best of people. and had it not been that this study had taken me out into

the country I should have been dead years ago. Besides how happy we could be, both with the same tastes, and the same inclinations, what was pleasure for one would be equal pleasure for the other, and though people of different temperaments may live together, and be comparatively happy, still if their tastes lie in the same direction, the chances of their happiness are much greater. How beautiful, for instance, is the structure of a flower," and, taking one of the yellow crocuses from the group, she drew her chair closer to her companion. "Now, look here," she continued, "you see these five yellow petals, in some of the flowers the petals are blue. Inside these petals are five stalks, with knobs at the top covered with a yellow dust, these are called *stamens*, and LINNE classed plants according to the number of these stamens. The knobs at the top are called *anthers*. In the very centre of the flower is another stem, called the *pistil*, with a knob at the top covered with a glutinous substance, this knob is called the *stigma*. I will now slit this stem open, and you will see it is a hollow tube which runs right down the flower stem. If I touch one of the anthers a yellow dust comes off, and if I put some of this dust under the microscope you will see it is a compound of small grains, which are called *pollen grains*. If any of this dust comes in contact with this centre knob, or stigma, it sticks, and the skin of the pollen grain bursts, and a little tube is thrust out, which penetrates the central stem to the distance, in this particular flower, of four or five inches. When the pollen tube reaches the bottom of the flower stem it comes to a little cavity called the *ovary*, and in this cavity are little bodies called *ovules*, the pollen tube searches out one of these ovules, and having found it the end of the tube bursts, and the contents of the pollen grain pass along the pollen tube, and are discharged upon the ovules."

"How curious," remarked John wonderingly, "and are all flowers arranged so?"

"Well, not exactly," answered Spring.

"though the principle is the same in all. In some plants the stamens and pistil are borne on different flowers, or even on different plants, and the plants, or flowers, are then called male or female, as they bear stamens or pistils."

"But when the flowers are separate like that how do the pollen grains pass from the anthers, as you call them, to the stigma?"

"O, by various means. In the common hazle, or nut-tree, the male and female flowers are separate; I noticed some in the wood to-day, and forgot to draw your attention to them. The small flowers are borne on long dangling catkins, which shake about in the least breeze, and in this way the pollen is made to fly, and some of it is certain to come in contact with the stigmas of the small scarlet female flowers, which you find at the extremities of the little branches. In other cases insects serve to convey the pollen from one flower to another. A bee, for instance, goes to a flower seeking honey, and in so doing it rubs its back against the anthers, when some of the pollen sticks to it. When it goes to another flower these grains get detached from its back upon the stigma."

"And all this, of course, is that the seed may be fertilised."

"Yes, certainly. Without this process there could be no seed for the propagation of the kind."

A long conversation followed, in which JOHN avowed the interest he was beginning to take in natural objects, and expressed his willingness to be a pupil if SPRING would teach.

"I shall only be too glad," said she, "and as I am thinking of having a little expedition after the moths, and do not care to go alone, I shall be glad of your company if you will come down some evening, and go with me."

"And I shall be equally glad of yours, SPRING, what evening shall I come?"

"Come the first warm night when the wind is not in the east, and I will have all ready."

(To be continued.)

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 62.

JANUARY 1st, 1881.

Vol. 2.

S U C C E S S .

A YEAR ago we wished our readers a Happy New Year, and that their undertakings might be prosperous, and crowned with the success they deserve. To-day, we repeat the wish, and as the beginning of a year seems an appropriate time for it, we will make a few remarks on some of the causes of success or failure. Possibly some of our readers notice that our good wishes are qualified by the condition of the success being deserved. Success certainly comes to some who can scarcely be said to deserve it from any special efforts of their own, and on the other hand, some who do their very best, reap little but continued failure. But remember while it is not "in mortal to command success" we may all of us deserve it, and then have no feelings of self-reproach that our failure is our own fault. One of our correspondents says "my motto is TRY, and I am sure it will succeed," and we have generally found, that though

"The best laid schemes o' mice and men
Gang aft alee."

there is generally some fault in

ourselves when we do not succeed. Mr. Gregson says "Work Wins," which is only another way of "Try always succeeds." A child's rhyme says

"If at first you don't succeed,
Try, try, try again"

and this we would urge upon all. Do not be discouraged by one, nor half a dozen failures, "Try, try, try again," "Try always succeeds" in the end, and "work always wins." But it is important to direct our energies aright. Failure often results from the best exertions if wrongly directed, and very little labour will ensure success when directed rightly. You will not catch many fish in a duck pond, but may soon fill your creel where they are carefully preserved. When you find your first efforts are not successful, endeavour to find out why they have failed, and if you learn the cause of your failure, you will probably learn how to succeed. "Men do not gather grapes of thorns, or figs of thistles," and when you learn the reason why you cannot gather "grapes of thorns" you will cease to seek them there, but look where they may be found. Want of energy then, and misdirected energy are two great

causes of failure. Punctuality too is as great a necessity as perseverance. It makes little matter what branch of Natural History you are pursuing, you must do what you have to do at the proper season. In some cases you must be punctual almost to a day, in others almost to a minute. You will not find spring plants in bloom in July or August. You will not find those birds in Winter, that visit us only in the Summer. If you want eggs you must look for them in April or May. Put off till June and you may get an odd nest with the eggs "hard set," but in

July,"
"The birds begin to fly."

Greater punctuality is perhaps needed for Entomologists than any one else. You must not only go for certain insects at the right time of year, but at the proper time for their flight. Some species that fly during the day, prefer the morning's sun, others like the greater heat of mid-day, while others again only come from their retreat as the sun declines. At night it is the same thing, one species may be taken on the wing, as twilight steals over the face of the earth, another appears so soon as it is quite dark, while others will come out at still later hours, and more than one species has been taken most freely after midnight. How are you to know the varied periods at which your game may be taken. Some information you can doubtless gather from books, but not much; experience is the best teacher. Never mind what

others have done, what have you done yourself? When did you take that specimen, and where? You do not remember! Then you ought to remember. How can you expect to get more of them, if you neither know when you got it nor where? That you did not know the species was all the more reason why you ought to have taken care to remember all particulars of its capture. Suppose it had been new to the British fauna, who would have believed in it if you could give no details of its capture? *Hydrilla palustris* was for a long time doubted as a British insect, because the first specimen taken was carelessly pinned against the wall by its captor, and not announced for some time after. Many a British *Daphidice* has been passed by as a female *Cardamines*, or looked on very doubtfully because nothing was known of its history. Instances could be enumerated without end, but this article is quite long enough. Let us enumerate before we close, with extra emphasis, the conditions of success. First, PERSEVERANCE—never be discouraged, try again, and again after that, and if success is still wanting, try again, and again, and again. Second, PUNCTUALITY—never put off till to-morrow what you can do to-day. To-morrow never comes. It is better to be too soon, and have to go again, than too late. Who would not rather wait fifteen minutes at the Railway Station, and catch his train, than arrive fifteen seconds after it moved out. Third, FORGET NOTHING—and in order to re-

member, never trust to your memory. We have spoken so often on this subject that some of our readers may be weary of it, but do you all do what is needed? A young Entomologist in our neighbourhood came during the past season to ask where he should take a certain insect. He had got one the year before, he wanted more, but only knew he had taken it himself, somewhere or other in the district. Alas! when he came the insect was already over, and he has to wait another year for it, after taking much more trouble to seek information than he would have needed to keep it for himself.

NOTICES.

Orders or other communications must be sent to JOHN E. RONSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Woodside Road, Beaumont Park, Huddersfield. Orders may also be sent to the printers or publishers.

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CORRESPONDENCE.

Dear Sirs,—I was much pleased with the first No. of "British Birds and Eggs," and shall be most happy to take it in. My collection of British Eggs numbers about 150 species, and shall be happy to lend you any for doing the plates if you will let me know what you want. I have curious varieties of some eggs, such as, Common Thrush, with one or two large blotches on them; a Partridge's egg the size of a Hedge Sparrow's; a small green Linnet's, and some green Linnet's having a perfectly white ground colour, and a few light red spots. I can also lend you some plates of eggs, about twenty

in number, one egg on each plate, painted by an aunt of mine. They are all well done if you care to use them.—Yours very truly, R. J. ATTYE, Ingon Grange, Stratford-on-Avon. [Many eminent Ornithologists and Oologists have most kindly placed their collections at our disposal for figuring, and some of them are extremely rich in varieties. At present we prefer varieties of the *Raptories*, as these will occupy our attention for some months. Any specimen's forwarded to Mr. Mosley for figuring shall have the utmost care. We shall also be glad of any notes of interest on any species.—Eds.]

EXCHANGE.

DUPLICATES.—*Helix Lapidæ*, *Helix Rupes- tris*, *Azeca Tridens*, *Carychium Minimum*, &c. DESIDERATA.—*Succinea* and *Unio*—Miss H. L. TAYLOR, Uttoxeter New Road, Derby.

DUPLICATES.—Larvæ of *Fimbria*. DESIDERATA:—Numerous. Pupæ preferred.—R. J. ATTYE, Ingon Grange, Stratford-on-Avon.

Hairs of Vampire for microscopic purposes on receipt of stamped envelope. I want a few specimens of Bats (English or Foreign); Birds, Eggs, or Insects in Exchange.—S. L. MOSLEY, Beaumont Park, Huddersfield.

NOTES, CAPTURES, &C.

We have heard from our valued correspondent and contributor, Mr. S. D. Bairstow, F. L. S., who is now at Port Elizabeth, South Africa. He enquires anxiously about the *Young Naturalist*, and says that the Fauna and Flora of the colony would open our eyes: "Tortoises walking about, locusts in thousands, snakes in abundance, birds of all descriptions, and niggers prolefic as daddy-long-legs." He promises notes on the Natural History of the district at an early date.

DISAPPEARANCE OF SATYRUS MEGÆRA.—Could any of the readers of the *Young Naturalist* enlighten me as to the disappearance

of *S. Megera* from this neighbourhood? In 1877, before I began to collect, I could have caught plenty on a common at Whitely, but from that time to the present I have seen none, yet I have visited the place scores of times in the hopes of finding some. The gorse has been cut, and burnt very much, can this be the cause of it?—H. THOMPSON, Coventry.

LOCAL LISTS.

The Geometrina of Plymouth and vicinity.

(Continued from p. 53.)

By G. C. BIGNELL, M.E.S.

- A. Candidata*.—Common. May and June. Bickleigh, Shaugh, Cann Wood.
- A. Sylvata*.—Not rare. June and July. Bickleigh Vale, Plymbridge.
- Acidalia scutulata*.—Common. June and July. Lanes and hedgerows.
- A. bisetata*.—Not common. June and July. Plymbridge.
- A. trigeminata*.—Common. June and August. Cann Wood, Ivy bridge.
- A. rusticata*.—Rare. July. Eastern Cliff. Rame Head.
- A. interjectaria*.—Common. June. Cann Wood, Laira embankment. There has been some little confusion between *osseata* and *interjectaria*. *A. osseata* is described in "Stain. Man." ii, 46, as having the costa brownish. Mr. H. Doubleday, in a communication to "The Entomologist," Vol. 10, 30, says.—"I have recently received from Dr. Staudinger several specimens of the true *Acidalia osseata*. I had not seen a Continental specimen before. The typical examples have a bright red costa, and I have never seen any British specimens like them; but I possess five or six which appear to be identical with a pale variety, also sent to me by Dr. Staudinger. There is, however, no doubt that the majority of

specimens in our cabinets under the name of *osseata* are really *interjectaria*. Haworth's description of the former species applies to the latter." The only difference between *osseata* and *interjectaria* is the color of the costa: the former is "bright red," the latter "brownish." Stainton's description of *osseata* applies to *interjectaria*.

A. virgularia.—Common. June, July, and August. Lanes and hedgerows.

A. incanata.—Common. June, July, and August. Bovisand, Cawsand, Kingsand.

ENTOMOLOGY FOR BEGINNERS.

By C. S. GREGSON.

DECEMBER.

"All's well, that ends well." Our year is now ending, is all well with us up to now? If what has been read in the *Young Naturalist* during the year has been persistently acted upon, then all is pretty surely well, and we may fairly rest a little from our out-door labours, and get our captures in order, because little can be done this month that could not be done at the end of November, or may not be done during the first open weather in January next. Still, if you have any time, pupa digging, and especially beetle hunting is now at its best. The edges of woods and plantations, or odd trees, and especially dead or dying trees, under loose bark or moss should be closely investigated, along brook or river sides, under rejectamenta, many species of *Carabidæ* may be found in most unlikely situations; thus mountain species brought down by the flood may be found in the low swamp land, but perhaps the best places are where the water has laid upon a large expanse of low land for some time, around the edges of the water the "wrack" is left as the water recedes, and under and near this rejectamenta, in dry tufts of grass, &c., every beetle that escaped

from the flooded space will be found, the only difficulty being what to reject. Well, don't reject anything you are in doubt about. Take a good-sized bottle, half full of bruised laurel leaves, with a quill inserted in the cork, and drop all your captures into it to be examined on wet evenings at home, at leisure during next month or so, and you will have more pleasure in throwing useless specimens away than in regretting you did not take more of that doubtful species. Perhaps I ought not to occupy space with remarks of this kind after eleven months practice by our young friends, but I shall never forget the remark of my old friend, H. T. Stainton, when excusing myself for not relating a circumstance I thought so well known as not to require notice, he said, "he preferred hearing a fact twenty times to never hearing it;" and hoping some of our young friends are "Staintons" in embryo, let me also hope they will excuse the digression, and that as the year is ended and our monthly notes completed for the year, let us say, "all's well, that ends well."

THE FOUR SEASONS:

A Story from the Book of Nature.

By LUCY FERN.

Chap. V.

A NIGHT AT SALLOWES.

The day had been warm, a steady breeze had blown from the south-west, and the western sky was tinted with red and yellow, as one evening in the middle of April, as John stepped up the garden walk, and was met at the door by SPRING, who gave him a hearty welcome.

"I am glad to see you, John, you have selected a good night, and I anticipate success among the moths. I have all ready in this bag, so we may as well start at once."

JOHN took the bag, and the two walked

leisurely along. It was quite dark when they arrived at the edge of a wood, where willows grew plentifully. SPRING took from the bag a lantern, and lighting it, selected one of the trees with plenty of fine yellow catkins upon it. She then took out a large white sheet, and spreading it out under the catkins, instructed JOHN to give the tree a smart shake. Tap, tap, tap went one thing after another upon the sheet, and then SPRING turned on the light to see what had fallen. Many of them were old withered catkins, but here and there a moth sat quietly upon the sheet. Some small chip boxes were immediately brought from the bag, one moth consigned to each.

"Well; this is capital sport, SPRING. I think we have got all, I don't see any more."

"Wait a bit, we must fill that tin with these old catkins, there will be some caterpillars in some of them, and these in time will produce some nice moths."

"But how will you keep them alive?"

"Oh, we need only put them in a wide mouthed bottle, or in a tree-pot covered with a piece of glass," answered SPRING, "and they will be all right, if we give them catkins to eat."

Tree after tree were shaken in this manner, and the catkins on the low bushes were examined by means of the lantern. Here and there would be seen two fiery eyes, with an uncoiled proboscis deep in the floral cup, sipping the sweet nectar; a geometric caterpillar would be seen looping along one of the branches; or a tiny weevil regaling himself along with his larger cousins.

"I rather like this kind of sport, Spring," said John, after the work was over and the two were on their way home. "I could not have thought there was such fascinating excitement about it; the continual expectation of getting something different, it must be entertaining in the highest degree to those who know the things at sight. I shall be glad to come with you again."

"Yes, it is grand sport allow

blooms. Last year at this time I spent a day or two on the Cheshire coast, about Wallasey. There a kind of dwarf fallow grows in the little valleys between the sandhills. It does not grow more than eighteen inches or two feet high, and I have seen it like a golden carpet with rich yellow catkins."

"Then I suppose you will get kinds of moths there which you could not get here?"

"Yes, many kinds, some of which are found in few other places; but it is back-aching work: the bushes are so low. There was plenty of work for the day-time too. In a morning we used to go out for a stroll over the sandhills where we were able to pick up several kinds of larvæ; one a very pretty one, called *Orgyia fuscelina*, with tufts of hair upon its back. We were also able to find a beautiful little moth very commonly, which we call *Nyssia zonaria*; the female is perfectly wingless, and you might almost take it for a spider. This insect has not been known very long, it being first discovered there in 1834 by a man very well known to Entomologists, called Nicholas Cook."

"It is grand to be you *Spring*," interposed the young man.

"It's a nice part of the coast is Wallasey," she said, seeming to ignore what he said, "Sandhills for miles and miles, as far as you can see, which the wind blows about, and throws up in drifts at times completely covering the fences, and you may walk over without noticing that a fence exists. On one occasion, I remember an old veteran Entomologist relating that he had walked over such a fence, and the owner of the land came to him to remind him that he was on his land."

"Your land" says the Entomologist, "ar'n't you mistaken?"

"No, indeed," returned the indignant land-owner.

"Well now just sit down here and let us argue that point," and the Entomologist with a half hidden smile proceeded, "you say this is your *land*, I think you are mistaken, you spell it wrong, this is not land, it is *sand*,

your land is about two yards below here, I have never touched your land."

"I tell you this is my property, and there is no road here!"

"Oh, never mind," says the cool insect-catcher, "never mind, you needn't make any apologies."

"But I tell you there is no road, and you'll have to go back."

"Nonsense, the road is quite good enough for me, now don't distress yourself, I'm not at all particular, the road will do for me well enough."

SPRING cut short the anecdote by requesting JOHN to give her the lantern, and lighting it she looked along a bank they were just passing where a variety of herbage grew, and as they passed along one caterpillar after another was seen stretched upon a blade of grass, regaling itself upon the new vegetation after its winter's sleep. Each one was taken and placed in a small tin, along with a supply of grass for food.

"When will you be going again on such an excursion?" asked John, after they had arrived at home, and were about to part.

"I go out once or twice every week, but I shall have an interesting excursion about the second Saturday in May, so however often you come before, don't forget to come then."

(To be continued.)

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

Assisted by Contributors to the Y. N.)

22, *Atalanta*, Linn. Pl. II, Fig. 2.

THE RED ADMIRAL.

"ATALANTA, L., *Atalan'ta*, a celebrated beauty, who made all her lovers race with her, on the penalty of death if they could not catch her.—Ovid, Met. X, 508." A. L. It has been said that Linné selected this

name for the present species on account of its great speed on the wing and powers of flight. In Dryden's translation of Ovid the reference will be found at line 917, Book X.

Imago.—Plate 11, Fig. 2. Forewing black, with a red band across, and a U shaped band of white spots at the tip. There is one white spot between the U and the red band, and sometimes another on the band itself. We believe this second spot is only found on the female. Hind wing black, with a red hind margin which includes a row of black spots. The edge of the hind margin of both wings is white, and there is a small blue spot at the anal angle of hind wing.

Larva.—Plate 11, Fig. 2a. Very variable in color; sometimes being almost black, and at other times a sort of dirty white; the general color, however, is a dingy greyish green. The spines, too, vary in the same way. The head and legs are black, the claspers reddish.

Pupa.—Plate 11, Fig. 2b. Rather stumpy, but much angulated, dull, grey, finely marked with black, and adorned with golden blotches, particularly on the more prominent parts.

Food Plants.—Common stinging nettle (*Urtica dioica*).

Times of Appearance.—The imago emerges in August, and remains on the wing till late in October. It has a very abnormal habit of flying by night, and specimens have occurred both at light and sugar. A record of its occurrence at light may be found at page 114 of Vol. I, and we have taken it at sugar in October ourselves, and have also seen it fly to our lantern after 11 o'clock at night. It hibernates without pairing and does not emerge from its Winter retreat so early as other hibernating species, and is not so often seen. We have never observed it ourselves before June. The eggs are laid singly on the common nettle, and the young larva, after selecting a suitable leaf, draws it together by the edges, and lives within the

retreat thus formed. When it requires a larger domicile it leaves the old one and forms another, but is never to be found feeding exposed. The pupa is concealed with equal care, but a practised eye will soon detect them among the leaves.

Habitat.—Common in all parts of Britain, and equally so in Ireland. Nettles are very much weeds of cultivated land, and especially are apt to be close to a farmhouse or the outbuildings. It is in such places, therefore, that we should look for the larva or pupa, but the butterfly itself is so strong on the wing that distance is little object to it, and it may be found in Autumn wherever there are suitable places, or basking on the dusty road like the last species. It occurs all over Europe except in the extreme north. It is found in Asia Minor, in northern Africa, and in the Mauritius, and also in the Western parts of North America.

Variation.—*Atalanta* is not a variable species, and no form has been named. A few aberrations have occurred, but they are very rare. Two are figured in Mosley's "Varieties of British Lepidoptera," Vanessa, Plate 2. One bred by Mr. Eedle has the scarlet bands, pale yellow shading to orange. The other bred by Mr. Vaughan has the bands much paler than usual and abruptly shortened at the anal angle. One in our own collection has the bands deep orange red, that on hind margin of hind wing being without the usual black spots. The underside of our specimen varies still more than the upper, but cannot well be described in words: we may say, however, that the red band is much larger, and more of a blotch, the blue is more suffused, and the hind wing without the usual mottling, and with the pale shade at the hind margin much wider.

Parasites.—Mr. Bignell sent us beautifully mounted specimens of a parasite bred from this species which appear to be an *Apanteles*, but in our present state of knowledge we are unable with certainty to determine the species.

E. G. MEEK,
NATURALIST,

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 63.

JANUARY 8TH, 1881.

VOL. 2.

CAPTURES.

WE complained during last summer, that the records of capture now-a-days, were much fewer in number than they used to be twenty years ago. Several correspondents responded to the article, by sending "captures," and we quite expect to have an increased number sent us during the ensuing season. It may be worth while to say a word or two to our younger readers as to the nature of the "captures" that are worth publishing. Many do not send their notes, because they do not know if they are worth printing. There is a great difference in collectors for this; one would rush into print with an account of the capture of a Common White, while another holds back the discovery of a novelty, until some one else takes it, who, announcing it at once, gains the honor, which did not belong to him, of being its first discoverer. We would urge our readers to send us all captures of interest, and we will tell them what we call captures of interest in the course of this article. Should this result in a larger number of com-

munications than we could find space for, we would, of course, select the more important, but we will promise our correspondents, that nothing really worth printing shall be left out, even if we have to increase the size of our paper to do it.

First in importance, of course, is the Capture of a New Species. This but few can expect to make, though new species are discovered every year, and may as readily fall to your net, as to that of another. Try. Captures of rarities are second in importance, particularly the rediscovery of a species that had not been taken for a long time, or one for which no certain localities are known. Captures of species that occur in but few places are interesting, especially when taken where it has not occurred before. Common things are worth recording under the same circumstances—when taken where they have not occurred before, or in a situation different to their usual habitat. The capture of moorland insects on the sea coast, of southern species in the north, of insects whose larvæ feed on a food that does not occur where it was taken, or anything similar to these, is always worth printing. Time

is an important element in insect economy, and the appearance of a species at an unusual period is often important; either an unusual period of the year, or the day—as an autumn species in June, or a Butterfly on the wing at night (*V. Atalanta* for instance). A very important thing is a full list of all the species that have been taken within a certain area or district. It matters little whether such district be limited to the immediate neighbourhood of the place where the collector lives, or whether it embraces an entire country. Its value depends on its completeness, and if no previous list has appeared, make one as complete as you can, and as you add to it in the future, send particulars of those additions to the former list. It is always well, in lists of this class, to say a word or two about the geology and botany of the district. When an insect of one district is known to differ in food, habits, or color from the same insect in another district, it should always be noted. If this had been done more carefully in the past, we should have understood insect distribution much better than we do now.

We have often spoken about the importance of the subject of variation. All varieties ought to be recorded without exception, and on this point we would wish to make one remark, at the risk of being contradicted. Varieties are of two classes, those that occur with some degree of regularity, generally in certain places, as the var. *Valezina*, in the New Forest; *Artaxerxes*, in the

North, &c., and those that are exceptional and often unique, such as *Caja*, with wing differing on opposite sides, males with one or more wings female, and such like. The remark we wish to make is, that the first class of varieties, are much more important than the second, though we know they are not as much prized. Those in which a seemingly natural change is taking, or has taken place, are interesting on that very account, as showing or helping to show, how what we call species have been brought about. Abnormal forms are only monstrosities, like a kitten with six legs. We have spoken above of the perfect insect only. Larvæ, found under any of the above conditions are equally worth recording, and there are some special matters connected with larvæ also. For instance, when they are found on a strange food plant, it should always be noted; and also when this happens, whether the usual food plant is wanting where they are found, or is plentiful, so as to show whether the change has been made from choice or necessity. Varieties of Larvæ are rare, and should always be noted. Certain species are known to have more than one form, and we have little doubt, more careful observation would add greatly to the number.

We have directed our remarks principally to Lepidopterists, because they form the larger portion of our readers, but their spirit will apply equally well to students in all other branches of Natural History, and are intended to be applied by them also.

NOTES, CAPTURES, &C.

PIERIS RAPÆ IN DECEMBER.—To-day (Dec. 30th.) a friend of mine brought me a small garden white (*P. rapæ*) which he said he had found in the house flying round the lamp. Does it hibernate all winter? the insect is quite lively now.—H. THOMPSON, Coventry.

[*P. rapæ* passes the winter in the pupa state. The above specimen had, no doubt, been introduced into the house with vegetables, or perhaps crept in of its own accord when in the larva state, gone into pupa state in some snug corner, and by the extra warmth had developed before its proper time.—Eds.]

P. POPULI IN OCTOBER.—Mr. Gregson mentions in his useful notes of Oct. that *P. Populi* may be taken. I shall be glad to know if it is not placed there by accident? as all the information I have access to leads me to believe it emerges from the pupa towards the end of Nov. (It emerged on the 24th, from my own breeding cage).—H. A. ANDREWS.

ORTOLAN BUNTING AT ETON.—The following may interest some of the readers of the *Young Naturalist*. About the end of June or beginning of July, 1878, I had the good fortune to find near Eton the nest of an Ortolan Bunting, containing eggs. At the time I did not know what the eggs were, but when in London I took them to a well-known Naturalist, who after a careful examination pronounced them to be those of the Ortolan Bunting. The nest was placed low down in a stunted bush.—B.C.A.

TO CORRESPONDENTS.

P.T.D., Edgbaston.—Proper entomological pins may be obtained from the dealers who advertise on our back page. Your insects are as follows:—a *X. rurea* var *combusta*, b s and t *N. xanthographa*; c q r & u *N. festiva*; d & BB *T. rubricosa*; e *L. testacea*; f *M. strigilis*; g *A. tragopogonis*; h *H. grisealis* of "Doubleday's list," *H. nemoralis* of "Stainton's Manual," one of the *Deltoides*; i *M.*

rivata; j *M. fasciuncula*; k *C. brumata*; l *H. progemmaria* var. *fuscata*; m *H. oleracea*; n *H. abruptaria*, the best insect in your box, if it is common with you the members of our Exchange Club would be glad if you would collect a few during the coming spring; o *E. lucpara*; p *C. suffumata*; v *P. cytisaria*, much faded; w *H. micæa*; x *C. testata*; y too much worn to name; z *C. corylata*; cc *C. graminis*; aa *X. cerago*. The eggs are 1 Greenfinch; 2 Chaffinch, rather a good variety; 3 Ray's wagtail; 4 probably Blue Tit, but cannot say unless we know situation of nest.

CORREGINDA: British Ferns. Error.—*Poly. Alpinum* page 350, should be *Poly. Alpestre*; and *Polyst. alpestre*, page 365, should be *Polyst alpinum*.

BRITISH BIRDS; THEIR NESTS AND EGGS.

S. L. MOSLEY.

Genus IV., Buteo, Flem.

BUTEO.—(?)

The birds of this genus are of moderate size. The head is small in proportion to the rest of the body, and rather flattened. A space round the eye is bare, or clothed with stiff bristles. The wings are rounded, the third or fourth quill-feather being the longest; when closed they reach near to the end of the tail. The tail is moderately long, and rather rounded at the end. The legs are longer than in the true falcons, but the feet and bill smaller in proportion. Two species are found in Britain, which may easily be separated by reference to the *italicised* sentences in the following descriptions:—

4, BUZZARD.

Buteo Vulgaris, Flem.
Shreak (S. W. England).
Puddock (S. E. England).
La Buse (France).

Mause Falk } (Germany).
Wald Geyer }

Falco Bottaon } (Italy).
Pagana }

Bod teircaill (Anc. Britain).

VULGARIS.—From *Vulgo* (L.), common.

Size.—Male, length from 18 to 20 inches, expanse of wings about four feet; female, length 28 inches, expanse nearly five feet.

Plumage.—Very few birds vary more than the Common Buzzard in the color of its plumage; some being very dark, while others are very light. The bill is pale brown; cere and eye yellow; back, in ordinary specimens, uniform brown; throat, breast, and under parts creamy, with brown transverse spots; wings brown; tail paler brown, with darker bars; legs yellow.

IMMATURE birds have generally more mottling about the feathers, the colors not being so distinct. The eye is brown, and the claws not so long. The feathers on the back are edged with a paler color.

VARIETIES of this species are not unfrequently met with in countries where it is common. A very dark variety (pl. 4, fig. 2) is in the collection of Mr. James Varley, of Huddersfield. It is uniform dark brown, with a few pale streaks under the chin, and a few pale transverse bars under the belly. Another very handsome variety (pl. 4, fig. 3) is in the possession of Mr. Hyanson, of Wakefield. Mr. Fredk. Bond, F.L.S., has had a specimen of this species perfectly white.

Note.—The note is a sort of wild melancholy whistle, quite in keeping with the desolate scenes generally frequented by the bird.

Flight.—The Common Buzzard has frequently been seen flying low over fallow land, skimming just above the ground, probably searching for its prey, perhaps by scent. At other times its flight is high, and when seen against the sky its large round wings give to it an appearance larger than it really is, and experienced naturalists have mis-

taken it for an eagle. When capturing its prey it swoops down from a height or from the branch of some tree, clutches the victim in its talons, and bears it away. Mr. W. C. Clarke says (Nat., Vol. 5, p. 51):—"Before us is a celebrated mountain from whose inaccessible side a buzzard flies; at first she wings her way with heavy flight, performed by slow and deliberate flaps of her broad and powerful wings. She pauses, almost coming to a standstill, and then wheeling, commences to rise by the most graceful and easy gyrations, performed apparently without the slightest effort. Higher and higher the bird rises, until at last she becomes a mere speck in the clouds, and the elevation reached cannot be less than 6000 feet.

Migration.—In England the Buzzard can hardly be said to be migratory, though large flocks have been seen all flying in one direction. It also ceases to roost on the fells as winter approaches, and comes down into the lower plantations, and, no doubt, those in the northern localities will come further south. In America, where it is very common, it is a regular migrant, arriving in the northern parts about the middle of April, and departing south at the end of September.

Food.—The food of the Common Buzzard consists of rabbits, hares, rats, frogs, and the smaller birds; it will also eat carrion, but probably only when other food is scarce. The mole seems to be one of the animals preyed upon by this bird.

IN CONFINEMENT the Buzzard is said to be easily tamed, and it soon becomes attached to its keeper. It should be fed upon raw meat, but if allowed at liberty it will find a considerable portion of its own fare in the shape of worms, and other garden vermin.

Habitat.—The Common Buzzard, like all other birds of prey, is much rarer than it was in former years; still it cannot be said to be uncommon, breeding plentifully in some parts of Scotland and Ireland, also in various places in England and Wales, where one keeper recently trapped fourteen in

thirteen months.

ABROAD it is to be met with in all the wooded countries of Europe, in North Africa, and in North America, where it has been observed as far north as the 57th parallel.

Nest.—The nest is sometimes placed in a tree, but generally it is built upon an overhanging ledge of some cliff. Not unfrequently the deserted nest of a crow or that of some similar bird will be adopted and repaired. This bird has been known to attack and drive a pair of ravens from their nest, which was then taken possession of by the aggressor. The nest when built by the Buzzard itself is very roughly put together, and is composed of sticks or heather lined with some softer substance, such as heather tops, grass, or hair.

Eggs.—The number of eggs laid by this species is generally two, sometimes three. They are greyish white, more or less spotted, streaked, or blotched, with red brown. From a statement in Hewitson's "Illustrations" it would appear that the eggs laid by young birds are more devoid of markings than those laid by birds of more advanced age.

VARIETIES sometimes occur with neutral gray markings mixed in among the red, which give the egg a very beautiful appearance; at other times they are white, without any markings of any kind. The Common Buzzard is said to be remarkably attached to its egg or young, and one kept in captivity sat and successfully brought up a brood of common fowls.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by S. L. MOSLEY.

Assisted by Contributors to the Y. N.)

Genus IV., Vanessa.

"VANESSA. F.; *Vanes'sa* probably from Swift's poem of Cadenus and Vanessa, in which the Dean (*Decanus*) tells the story of

his love for Esther (*Essa*) Vanhomburgh. Sodoffsky proposes *Phanessa* a Neo-Platonic name for the God of Love."—A.L.

A genus of between twenty and thirty species, all of which inhabit temperate countries. About one third of them are European, and five are recognized as British. Most, if not all, of them pass the winter in the winged state, some of them retiring directly after emergence, others continuing on the wing a long time in the autumn. Some of these are conjectured to be double brooded, but we think this is more than doubtful. They are very closely allied to the preceding genus, some authors including *Atalanta* with it, while one of our British species—*C. album* has been placed in the genus *Grapta*, which later writers include with *VANESSA*.

The British species may be thus distinguished—

- 1 Wings dull red, an eyed spot at the tip of each V. Io.
- 2 Wings chocolate red, a whitish border to all wings V. Antiopa
- 3 Wings orange red.
 - A A black spot on costa of hind-wing V. Polychlorus
 - B The base of hind-wing black V. Urticeæ
 - C Several black spots on hind-wing. The margin much angulated V. C-album

22, Io. Linn. Pl. II, Fig. 3.

THE PEACOCK.

Io, L., Ið, a Grecian heroine, famous for her beauty and her misfortunes. Ovid, Met. i, 588.—A.L. Dryden's translation i, 796.

Imago.—Plate II, Fig. 3. Forewing dull dark purple red, with the hind-margin brown, a large eyed spot at the tip, two black blotches on the costa, and several small blue spots upon and below the eye. Hind wing similar in colour, the eye black in a yellowish ring, with two blue spots across the centre.

Larva.—Plate II, Fig. 2. Black, covered with branched black spines, and studded with

white warts. It has a very shiny appearance, almost as if wet.

Pupa.—Plste 11, Fig. 3b. Much angulated like others of the genus, ochreous green, turning darker by degrees.

Food Plant.—The common stinging nettle (*Urtica dioica*).

Times of appearance.—The Butterfly emerges in August, and appears to hibernate rather earlier than the last species. It reappears in spring, and lays its eggs in batches on the common nettle. The larva may be found in June or July, and are always gregarious; from their colour, and shining appearance, they are very conspicuous objects on a clump of nettles. The pupa may be found in July or August, but is not generally suspended from the food plant itself. In confinement we always noticed them hang up on to the top of the breeding cage, or whatever they were fed in, and a similar remark will be found in Mr. Newman's account of the species.

Habitat.—Generally distributed in England, but more abundant in the south. In Scotland is very rare, and does not appear to occur at all in the very north. It is found all over Ireland, and is abundant in most places there. Except in the extreme north, it is found all over Europe, and in the parts of Asia bordering upon it. This insect has disappeared from many of its old localities, where it used to be very common. Perhaps it will return to them again in time.

Variation.—Varieties of this species are rare, and hundreds of specimens may be examined without the slightest difference being apparent. A very curious one is figure 1 in Mosley's "Varieties of British Lepidoptera," *Panessa*, plate 2, fig. 3. The eyes are wanting on both wings, the hind wing being dark stone color, with only a black spot on a lighter shade, where the eye should be. Similar specimens exist in other collections, and have been called "The Blind Peacock." There is a splendid variety in the wonderful collection of Mr. Bond; it has the costa, half down the

hind margin, and a dash inside the eye on hind wing, pure white. Sometimes the wings are very thinly scaled, and the purple red changed into chocolate. Two varieties have been named *Ioides*, *Ochs.*, and *Sardoa*, Staud. Cat. The first is smaller, and the latter, which occurs in Sardinia, larger than the type. We do not know that their markings differ.

Parasites.—None recorded that we know of.

THE FOUR SEASONS:

A Story from the Book of Nature.

By LUCY FERN.

—
 Chap. VI.

ON THE MOORS.

JOHN did not fail to accompany SPRING on many of her little excursions, not only because she was attractive, but because the objects which she sought had also become interesting to him. According to agreement when the second Saturday in May came, he was ready and was delighted to join SPRING in the excursion she had anticipated. When he arrived at the little rose-covered cottage she was ready to welcome him with her usual kindness.

"SUNSHINE, bring that box," she says, "and show JOHN the contents."

SUNSHINE produced a wooden box, the top of which was covered with perforated zinc. On opening, the lid the inside was seen to contain some pear-shaped cocoons, and around the box were here and there a beautiful woolly moth, with moons on its wings.

"What beauties!" he exclaimed, "where did you get them?"

"They are got on the moors, and I purpose going to-day. You see there are two kinds, one larger and paler than the others, these are females, and I have one of those females here in a separate box, she has seen

none of her companions, and if I take her upon the moors, and place her down upon the heather, she will attract the other sex, and we may catch as many as we like. These are one of the silk-producing moths," continues SPRING "and the only representative we have in Britain. You see these cocoons are made of silk, but when the grub is spinning it breaks off the silk every time it comes to this opening, which is left for the exit of the future moth, so the silk cannot be wound off. There are some kinds abroad much larger than these; one comes from America, which is fully seven inches in expanse of wings, and there are others in India eleven inches or more across. I have often kept the caterpillars which produce these moths, they are beautiful creatures—pea-green with red wax-looking knobs, studded with gold and silver. But let us away, or we shall be too late for our train."

The station was reached just in time for the noon train, and a two-hour's ride brought the party to a small country station on the borders of the high Yorkshire moors, to which they—SPRING, JOHN, and SUNSHINE made the best of their way. Crossing a ploughed field in the valley before they began to ascend the hill, there were an innumerable quantity of round boulders and pieces of stone, and JOHN was just puzzling himself as to how they came there when SUNSHINE put the question to her sister.

"I was just asking myself the question," said JOHN, "here is one of granite even, and I don't think there is any granite rocks in the neighbourhood, now SPRING I know you can tell us something?"

"Well, once upon a time (you know that's the way all stories begin) a very, very long time ago, long before you or any other man was born, the continent of Europe stretched out beyond the British Isles far into the Atlantic, and even now the boundary line of that continent can be found sunk beneath the ocean. Mariners know it as the 20 fathoms line, all inside that line being within 20

fathoms, while outside it is much deeper. Large and extensive glaciers then existed in this country, its temperature being much lower than it is now, caused amongst other things by the land being at a greater elevation. These glaciers, or rivers of ice, brought down all kinds of rubbish which got into them, and when the ice came lower down, and melted, these boulders were deposited upon the lowlands. I dare say if we were to search we could find some which are scratched by rubbing against some hard rock in their passage down. We will see if we have time when we return."

"Oh! I see it now," says JOHN.

"Yes, and so do I," says SUNSHINE, as she beheld a velvet black butterfly, with scarlet bands across its wings, but before the net could be produced it was sailing swiftly out of sight.

"Here we are," said John, as he beheld the wide expanse of moorland stretched out before him, and the three sat down for a few moments to contemplate the valley which lay beneath, so very flat beach-like district they had just left. It was hungry work climbing those hills, so a hard-boiled egg and a piece of dry toast was produced, and quickly extinguished. Soon the three moved higher up the moor, where they sat down, got there the net ready, and "planted" their female emperor moth. They had not sat long before they saw a male nearly half a-mile distant beating his way against the wind. He struggled on until he came close to where they sat, wheeled once or twice round the attractive female moth, and when just about to alight the net was handed to JOHN, and his lordship was taken into custody.

Many "takes" were made in this way, and when a sufficient quantity had been got the party turned their attention to the smaller moths which flew about in hundreds about the heather, and Sunshine found a titlark's nest which contained a cuckoo's egg, similar in color, but larger than the other eggs.

(To be continued.)

THE YOUNG NATURALIST.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 64.

JANUARY 15TH, 1881.

VOL. 2.

NOTES & OBSERVATIONS.

LAST week we attempted to give our young readers some slight idea of the various cases under which they should send their captures for publication. We propose to-day to say a few words on a similar subject, and one, perhaps, of greater importance. In No. 62, p. 69, Mr. Gregson quoted Mr. Stainton, who said "he preferred hearing a fact twenty times to never hearing it;" and we would begin our remarks by directing special attention to that statement. We might almost take it as a text and enlarge upon it in proper fashion, divide the subject into heads, and wind up with the application. There is so much more in the sentence than appears, perhaps more than was intended, to be conveyed. It seems to mean that it is better to be bored by being told something you know than to be kept in ignorance by being supposed to know and not being told at all, and in relation to a certain class of facts this is all it can mean. To be told that a rare butterfly occurs at a certain place includes the whole matter, and to be told twenty times gives no more information than to be told once. We

hear that a plant we want for our herbarium blooms in a certain lane, or moor, or hill, and hearing it once tells us all we want to know. With facts of this class repetition of the information adds nothing to our knowledge, and though we prefer hearing it twenty times to not hearing it, the nineteen times are only repetitions of what we already knew. But there is another class of facts in which we learn from their constant recurrence something we could not learn from hearing the statement once. A person who knows nothing of Entomology finds a chrysalis fastened by the tail, and with a belt of silk round the body; it produces a white butterfly, such as he had seen about the cabbages of his garden. He finds another fastened by the tail only, that produces the beautiful insect he has heard called the "Peacock." Interested in the matter he searches for more chrysalides the next season, and finds that he gets two different butterflies from those with a silk belt round them, and which he always finds near his cabbage, but they are both "whites;" he never finds a "Peacock," nor a "Tortoise shell," under such circumstances. These he finds near or

on nettles, and by close searching he has even found another, concealed in a leaf, but suspended by the tail only, and from the constant repetition of the same facts he begins to draw conclusions, and when he finds a belted chrysalis he at once concludes it is a "white." If he finds some hanging by the tail under the nettle leaves he says "these are 'Tortoise shells,' they always come out of chrysalides so fixed." If they are concealed under a closed leaf he says, "these will produce 'Red Admirals.'" The "twenty times" has learned him something the "once" did not. By this regular occurrence of the same thing with the same species we have learned a great deal about the habits and economy of very many animals of all kinds. We know that "Foxes have holes, and birds of the air have nests;" that rabbits live in burrows, and hares do not; that a robin never nests in a tree, or a rook on the ground; that newts live in water, lizards on the earth; that each species has its own peculiarities and habits and modes of life. But we have only learned all this by the same thing coming under our notice so many times, that we have been forced, as it were, to accept it as something that was invariably the same, and we now connect the habit with the animal as two things that are inseparable. How has this knowledge been attained? By habitual observation, and by a careful record of what has been observed, not by one person, but by very many. But while we know a little about some of

the various creatures that inhabit the earth, there are very many of whose habits and economy we know nothing, while of those with which we have most knowledge there is vastly more to learn than we have yet surmised. There are probably more lepidopterists in Britain than of all other naturalists together, and we doubt if ever there were a tithe of the number in any other country in the world. Yet we have not we have not learned all, or nearly all, about our very limited number of Butterflies. Of some we scarcely know how many broods there are in the year. We are in doubt how many pass the winter, and even the highest authorities differ on the points. The larvæ of some are unknown, and even of some of the commonest species they have been so seldom seen that few can tell you how to find them; and, except on the wing, have no knowledge of the species except what they have read, which is not enough to enable us to observe for ourselves. Our ignorance perhaps will be more evident if we attempt to answer a series of questions, say on the eggs of some particular species. How are they deposited, when, and where? In the day or night? Singly or in batches? Loose or attached? If attached are they on the food plant or not? Does the egg remain over winter? If so, is any protection afforded to it against cold? How does cold effect it? Can its vitality be extinguished by cold? Against enemies? To what enemies is it subject? When does it hatch? What

was its shape and colour when first deposited, and what changes take place before it hatches? Is hatching retarded by cold, or hastened by warmth? Do the whole of the eggs deposited at the same time hatch together? If not, what causes the difference? Male imagines often emerge first; is there any sexual difference in the time of hatching?

We have without consideration jotted down over a score of questions, all of which are of importance, and the number might be greatly enlarged. How many of these can be answered? If the larvæ was taken instead of the egg the number of questions would be infinitely more numerous, and so of the imago. But our space is exhausted. We would direct our readers' attention in conclusion to the two classes of facts about which information is wanted. Never suppose anything is too trivial. It is the number of trivial observations that make up the great and important whole. In sending us "captures" give as much detail of circumstances as you can, whatever the stage of life in which your prize was found. You had better tell us something every one knows as leave out the smallest fact that was unknown.

NOTICES.

Orders or other communications must be sent to JOHN E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Woodside Road, Beaumont Park, Huddersfield. Orders may also be sent to the printers or publishers.

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Communications for insertion should reach us *one week in advance*.

TO CORRESPONDENTS.

We shall be obliged if parties having outstanding accounts for Vol. 1 of this magazine would kindly remit at their earliest convenience. Those subscribers who have not paid their subscriptions for Vol. 2 are reminded that the same is now due.

J. W. E., Liverpool.—We shall be glad to see your "weeks botanizing;" no doubt it will be suitable. We do not know where you would be likely to get a second-hand copy of the book you name; offer some other work for it in our exchange column.

Mrs. Battersby of Cromlyn, Ireland, send us some drawings of very beautiful varieties of eggs, from her collection, for figuring in our work on Birds and Eggs.

Mr. G. Pullen, Free Library and Museum, Derby, has been appointed agent, and will be happy to supply the *Young Naturalist*.

NOTES, CAPTURES, &C.

HYBERNIA DEFOLIARIA.—On December 11, ulto., I captured a male specimen of *H. defoliaria*, and on January 2, I caught another male at the gas-lamps, which I think is the dark variety: it is reddish brown, sprinkled all over with minute dots.—F. KERRY, Harwich.

EXCHANGE.

I have the undermentioned eggs blown with one hole in the side to give away:—3 Kestrels, 1 Long-eared Owl, 2 Red-backed Shrike, 2 Green Woodpickers, 2 Goatsuckers, 2 Nightingale, 2 Bulfinch, 2 Skylarks, 1 Cuckoo, 2 Whitethroat Great, 2 Swallow, 2 Golden-crested Wrens, 2 Great Tits, 2 Reed Wrens,

1 Blackcap Warbler, 2 Redshanks. Boxes to be sent and return postage paid.—F. KERRY, Harwich.

I should be glad to hear from anyone who has duplicates of *L. adustata* and *A. badiata*, or can procure them in season. I can offer in exchange *P. ioto*, *V-aureum*, *chrysis*, and other specimens in season.—GEO. T. MILLER, 23, Cromwell Terrace, Bensham, Gateshead.

LOCAL LISTS.

The Geometrina of Plymouth and vicinity.

(Continued from p. 68.)

By G. C. BIGNELL, M.E.S.

- A. immutata*.—Common. June, July, and sometimes September. Cann Wood, Bickleigh.
A. remutata.—Common. May and June. Cann Wood, Plymbridge, Shaugh.
A. imitaria.—Not common. August. Plymbridge, Ford, Pennycross, Stoke.
A. aversata.—Common. June and July. Bickleigh Vale. *Var. remutata*, with broad brown band crossing the middle of the wings, taken frequently in the same locality.
A. emarginata.—June and July. Plymouth, "Stain. Man." I have taken it at Exeter and Shaldon, but not in this locality.
Bradyepetes amataria.—June and July. Plymouth, "Stain. Man."
Cabera pusaria.—Common. May and June. Bickleigh Vale, Shaugh, Cann Wood.
C. exanthemaria.—Common. May and June. Same as the preceding.
Corycia punctata.—Not common. May and June. Near Shaugh, Saltraw, Ivy bridge.
C. taminata.—Rare. May and June. Eastern end of Chelson Meadow.
Macaria alternata.—Not rare. June and July. Road to Shaugh from Plympton, and from Egg Buckland to Plymbridge.
M. notata.—Not rare. May and June. Compton, Bickleigh.
M. liturata.—Common, but local. May, June, July. Cann Wood, among the fir-trees.

- Lozogamma petraria*. Common. May and June. Bickleigh Down, Buxton Brake.
Nmeria pulveraria.—Not common. April, May and June. Bickleigh Bridge, Withy-hedge.
Fidonia atomaria.—Not common. May and June. Ivy bridge, and on the downs among heath.
Sterryha sacraria.—Rare. May, July, August, September, and October. The first recorded capture in England of this beautiful little moth is in the "Weekly Intelligencer" Vol. III, p. 36, taken by Mr. H. Roger, "at a gas lamp," near Sea View Terrace, Plymouth on the 27th of September, 1857. I have had the pleasure of taking two; the first on the 6th of September, 1865, at Mount Batten, the second, October, 1867, out of a gas lamp in Richmond Walk, Devonport.
Aspilates citraria.—Common. May and August. On the Cliffs, Whitsand bay; Yealm point.
Abraxas grossulariata.—Abundant. July and August. Everywhere.
Ligdia adustata.—Common. June and July. Compton, Bickleigh, Radford.
Hybernia rnpicaprvaria.—Common. January and February. Lanes and woods.
H. leucophearva.—Common. January, February and March. Shaugh, Bickleigh, Cann Wood.
H. aaurantiaria.—Common. October and November. Same as preceding.
H. progemmaaria.—Common. February and March. Same as *leucophearva*.
H. defoliaria.—Common. October and November. Cann Wood, Bickleigh, Ivy bridge, Radford.
Anisopteryx æscularia.—Common. March and April. Everywhere.
Cheimatobia brumata.—Abundant. October, November, and December. Everywhere. This is one of our most destructive insects, the ubiquitous larvæ feeding on all trees.
Operabia dilutata.—Common. September and October. Plymbridge, Bickleigh, Shaugh.

Larentia didymata.—Common. June and July.
Hedges near Stonehouse Reservoir.

L. multistrigaria.—Common. March and April. Bladderley Lane.

L. miaria.—Common. May, June, and July.
Every hedgerow.

Emmelesia affinitata.—Not common. June and July. Bickleigh, Radford, and Plymbridge.

E. alchemillata.—Rare. May and June. (22 June). Near Maker Church, Plymbridge.

E. albulata.—Common. June. Ivy bridge, first field after passing through the woods in the vale.

E. decolorata.—Common. June and July. Compton path-fields from Lipson, Ivy bridge, Egg Buckland, near Cawsand, Stoke.

Eupithecia venosata.—Not common. May and June. Railway cuttings and embankments, and on the coast. I have never captured the imago at large, but have bred many from larvæ obtained in seed capsules of *Silene inflata*. The larvæ of this genus are found more frequently than the imago, the majority of them feeding on flowers and seeds.

E. linariata.—Not rare. June and July. Laira. Larvæ in seed capsules of *Linaria vulgaris* (Yellow Snapdragon).

E. pulchellata.—Common. May, June, and September. Where *Digitalis purpurea* (Foxglove) is abundant, larvæ feeding in the flower, on the pistil and stamens.

E. centaureata.—Common. June and July. Quarry; Richmond Walk; Stoke; Cawsand Bovisand. Larvæ on flowers of various umbelliferæ.

E. castigata.—Common. May and June. Bickleigh, Shaugh, Wemburg.

E. irriguata.—Rare. April. Boringdon Wood.

E. trisignata.—Not common. June and July. Bickleigh vale. Larvæ feeding on the flowers and seed of *Angelica sylvestris*.

E. albipunctata.—Common (in larva state on blossoms of *Angelica sylvestris*.) May and June. Bickleigh Vale, Plymbridge, Antony, Billacombe

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

Assisted by Contributors to the Y. N.)

24. ANTIOPA, Linn. Pl. II, fig. 4.

The Camberwell Beauty.

ANTIOPA, L., *Antiope*, the mother of Amphion. Pers. I, 77."—A.L.

Imago.—Pl. II, fig. 4. All the wings are deep chocolate brown, bordered with rather dirty white. Just within this border it is a black band, on which are a number of blue spots. On the costa of the forewing there are two spots near the tip, of the same dirty white as the border.

Larva.—Black, with black spines and white spots. A brick-red spot on each segment from the 4th to the 11th. Head and legs black, claspers dull red. This description is taken from various figures of the larva, which is one we never saw, nor are we aware that it has been bred in this country, at all events in recent years, except from imported larvæ. One of our French subscribers has kindly promised to send us specimens during the ensuing season, when it shall be carefully described.

Pupa.—We have seen neither figure nor description of the pupa of this species. It is doubtless similar in appearance to the others of the genus.

Food Plants.—The larva is said to feed not only on the common stinging nettle (*Urtica dioica*) but also on birch (*Betula alba*), poplar (*Populus sp.*), and more commonly on willow, especially the white willow (*Salix alba*.)

Times of appearance.—The butterfly makes its appearance at the latter end of summer, and there is more difficulty perhaps in understanding its irregularities, than with any other British species. Sometimes it shows itself in very large numbers, and occurs all over the country; far inland, as well as on the coast. Then it will disappear altogether for years, or only appear singly. It is powerful enough on the wing, to cross

the North Sea with a fair wind, from almost any part of the Continent; but this does not solve the difficulty because our British *Antiope* nearly always have a much whiter border than Continental specimens. Those found in Sweden, it is true, have a border similar to ours, but while it might be possible for a migratory swarm from that country, to reach our shores under very favourable circumstances; we cannot conceive it possible that this should happen, and the species never cross from the much closer French coast, where it is always abundant. It has been conjectured that the eggs "may occasionally lie dormant for several seasons, and not hatch until some extraordinary but undiscovered coincidences awake them into active life." We cannot accept this solution for as Mr. Newman points out "the eggs of the Vanessidæ pass so few days in that state, and would, of necessity, fall with the falling leaves of the willow, and the young caterpillar in emergence would be irretrievably separated from its food plant." We would rather believe that the hybernating imago remains dormant, as we suggested in reference to *P. cardui*, "until some extraordinary but undiscovered coincidences, awake them into active life." It is seldom seen in spring, but little can be deduced from that. *P. Atalanta* which is known not to pair in the autumn is but rarely noticed after hybernation, though it is so common an insect. We have a specimen of *Antiope* taken on 8th February, 1869, crawling out of some burning underwood near Castle Eden Dene. This was too early for it to be seeking to deposit its eggs, and had its torpidity been very great it would scarcely awake from it in time to escape death under such circumstances. The difficulties of the case are not lessened by the fact that the larva was never observed, even in those years when the imago was most abundant. The larva is said to feed in June and July, and the pupa to be formed in July or August.

Habitat.—No special habitat can be assigned to *Antiope* in this country. It seems

to have occurred with equal irregularity in all sorts of places. Its English name implies some connection with the suburbs of London but there is certainly no special abundance of the species in the neighbourhood of Camberwell now. On the continent, it is said to be a wood insect, which from the larvæ feeding on trees seems but natural. It occurs all over Europe, in northern Africa, in Asia, and over part of America. (We have specimens from as far south as Venezuela).

Variation.—The form of this insect that occurs in Britain, has, as we have already said, a whitish border to the wings. This is the variety *Hygia*, Hdrch., the true *Antiope* having an ochre-yellow border. We lately received a number of bred specimens from North America, which we noticed had the yellow border much suffused with black scales, especially at the projections of the margin. This may be the var. *Lintneri*, Fitch, which Kirby names as being found in the United States. We have not seen any abnormal departures from the type.

Parasites.—None known to us.

THE FOUR SEASONS:

A Story from the Book of Nature.

By LUCY FERN.

Chap. VII.

SPRING DEVELOPS INTO SUMMER.

We pass over a brief period in the history of the two personages who have been our companions through the foregone chapters of this story, and we now find them in the happy position to which all look forward in their younger days; that of being united under one name, and "for better or for worse" being each others partner through life. In this case let us hope that it was all "for good." The beginning augured well, for JOHN had ceased to cram himself with books, and in the field of nature he took almost as much delight as SPRING herself. By a turn of

THE YOUNG NATURALIST.

fortune she had become the possessor of comparative wealth, so that it was not necessary that her partner should be tied down by any business cares, but they could enjoy life in whichever way they pleased. Her name was to be changed, how should it be done? Some men unite the maiden name of their wife with that of their own; in other cases they retain their maiden name, and the husband and wife are known by two totally different names, John Brummet and Spring chose to have a thorough union, and to unite their names; he was to take away the first two letters and the last one from his name, and substitute in their place two letters from her name, and instead of SPRING and BRUMMET, SUMMER was the result, and thus from the 20th of June we shall know these two individuals by that distinction.

MR. and MRS. SUMMER had arranged that with the beginning of their union they would have a three months tour through England. Nature had donned her gayest costume; every lane was blooming with the gayest flowers, the woods abounded with young broods, the love and care of their tender parents; and the little rose covered cottage seemed sweeter than ever it had done before, to throw a ray of happiness on the moment SPRING merged into SUMMER.

Where to begin their journey had been a matter of consideration, but as a friend had suggested that if they went to London they could from there, "start for any quarter of the globe;" they had taken his advice, and determined to go to London for a start. It was decided that it was to be a thoroughly natural history expedition; and everything being ready, as soon as the ceremony was over, they started on their journey, taking SUNSHINE as their companion.

London was reached in about three hours, and we need not refer to every incident in seeking out apartments for a short stay, &c., suffice it to say, that the first place selected for a visit was Bethnal Green Museum. There they found everything arranged in the most in-

structive manner. Everything useful to man, as food or clothing was arranged in the most systematic order, then they examined those cases illustrating the economy of insects injurious to vegetation, and lastly turning into one of the small rooms in one of the lower passages and presenting their compliments to the attendant they examined the extensive and beautiful collection of *Lepidoptera* left by the late Henry Doubleday, not forgetting to inscribe their names in the visitor's book before they left. This was one day's work. The next day was spent in examination of the treasures of that magnificent institution the British Museum. From the stately skeleton of the Giraffe which towers up almost to the skylight, down to the minutest animal, everything was an object of admiration or of wonder. Along the galleries could be seen batches of young men and women, with one of the warders instructing them in the wonders of nature, and MRS. SUMMER was pleased to see from the number of note-books in use, that her sex seemed to take quite a lively interest in the lessons, and as the hour for leaving drew near, the party found they had not seen one-half of the treasures of the building.

The next day they again repaired to the museum and turning to the left on entering and following the passage they came to a door under some steps marked "Zoological Department," ringing the bell they hear the bolt shot from within, and opening the door the party walks in. Mr. Summer presents a note of introduction and enquires for the British collection of coleoptera, he had a few species he wished to name, so he is taken to the far end of the room, the cabinet doors are opened, and the three visitors begin at once to seek and compare. The Zoological Gardens, South Kensington, Kew, and other places of Scientific interest are visited in turn Day after day is spent in contemplating new sights, until at length they bid good-bye for a time to town life, and prepare for the country.

(To be continued.)

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FOR PRICE LISTS APPLY TO

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Printed by PRESTON BROTHERS, High Street, Huddersfield; and published by MESSRS. JOHN KEMPSTER & Co., 9 and 10, St. Bride's Avenue, Fleet Street, London

The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 65.

JANUARY 22ND, 1881.

VOL. 2.

NOMENCLATURE.

Fourth Paper.

DERIVATIONS.

WE have been told that in our papers on this subject, we have begun at the wrong end, have "put the cart before the horse," and that we should have begun at "the beginning," and given some account of the Names of Families, and Genera, before we came down to Species. With all due deference to our critic, we think that he looks at the matter from the wrong stand point. We are endeavouring, however feebly and imperfectly, to give information to beginners, to those who are either just commencing the pursuit, or whose opportunities have not been great. We have begun with Species because those we write for know most about Species, understand their markings, &c., as species, and not as Genera, or Families. We may be wrong, but we think it is both easier and better to teach from what is known, and lead by degrees to what is not understood; rather than to plunge at once into the

whole subject. Nevertheless we are thankful to our critic, and are always glad of our readers' comments and opinions.

We propose to-day to say a few words on the names themselves. "Linnaeus," says the Accentuated List, "first attempted to combine in some degree Natural and Civil History, by attaching the names of personages, illustrious in their day, to Insects of particular kinds. His first division of the Butterflies consists of *Equites* (Knights), and these are sub-divided into *Troes* and *Achivi* (Trojans and Greeks)." We do not know that there has either been advantage or disadvantage derived from the classical names given to so many Butterflies, though it seems rather absurd to capture *Agamemnon* with an insect net, or imagine *Solon* or *Tacitus* disporting themselves among Butterflies. Other writers have had other ideas in giving names to Species, some wishing to do honour to an individual, others to refer to some peculiarity or habit of the imago or larva, while for some names no derivation has been assigned. There seems to us a peculiar fitness in complimenting those who have done

good work in the science, by naming after them some new species, particularly when it is by their labours that the insect has been brought to light. We know some object to such names, but we cannot see the force of the objection. If we had to begin now to give names to species, we might, perhaps, devise some more perfect system for their construction, but the present one answers every purpose, and some one would be clever enough to find fault with perfection. The object, however, of these papers is to explain to beginners what we think they ought to know. This, it seems to us, will be best accomplished by giving a few names of each different kind with their derivation. These will be taken as before from the names of British Lepidoptera, as being best known to our readers. Examples of classical names may be found in the papers on British Butterflies now publishing in our columns. *Machaon*, one of the sons of Æsculapius, *Colias*, *Argynnis*, *Paphia*, *Apatura*, *Phleas*, &c., all surnames of Venus. *Acis* and *Galatea*, *Hyale*, *Io*, &c., are to be found in Ovid. *Tithonus*, *Egon*, *Alexis*, *Adonis*, &c., in Virgil. Names in honour of individuals of modern times are not very numerous among British Macro-Lepidoptera, but we may instance *M. Haworthiata* and *C. Haworthii* in honor of Haworth, the author of "Lepidoptera Britannica." *A. Ashworthii*, in honor of J. H. Ashworth, of Manchester, who first took the species. *Banksia* (genus), in honour of Sir Joseph Banks, the companion

of Captain Cook; *Blomeri*, in honour of the late Captain Blomer; while we may mention *Dahlii*, *Helmanni*, and *Dumereli* as named in honour of eminent men of other countries. Species named from their food plants are much more numerous: *Brasica* and *Oleracea*, from Cabbage, (*Brassica oleracea*); *Crategi*, *Cratagata*, and *Oxyacanthæ*, from the White-thorn (*Cratægus oxyacantha*); *Galii* and *Galiata*, from bedstraw (*galium*); *Fagi* from Beech (*Fagus sylvatica*); *Quercus*, *Quercana*, and *Roberaria*, from oak (*Quercus robor*); and so on. Mistakes have sometimes been made; thus we have *Hippocastanaria* from the Horse chestnut, the larva feeding on heath. *Popularis* from the Poplar, the larva feeding on grass. *Sphinx pinastri* is appropriately named, as is *E. Piniaria*, the larvæ feeding on Pine; but *Dipterygia Pinastri* is named in error, for the larva feeds on Sorrell. Our space will not permit us to enlarge on these heads and we must refer more briefly to others. Species named after their colour or markings are numerous. *Flavago*, yellow; *Flavicornis*, yellow-horned; *Flavicincta*, and *Flavicinctaria*, yellow-ringed; *Aureola*, *Auriflua*, *Auricomæ*, *Aurago*, *Aurantiaria*, and *Aureum*, all from *Aurum* the Latin for gold, while *Chrysitis* is named for *Chrysos* the Greek for gold. *Nigra*, black; *Brunne*, brown; *Rufina*, red, and so on. *Albimacula*, white spot, *albicolon*, white colon, *albipuncta*, white puncture, *octomaculata*, eight-spotted, *geminipuncta*, twin punctures,

Undulata, from the undulating lines, *Multistrigaria*, from the many strigæ, or lines, *Retasa*, blunt, from the blunt hind margin, *Subtusa*, rather blunt, *Rotundaria*, rounded, &c., &c. Other names refer to certain habits of the imago or larva, *Orygia*—the out-stretched arm—from the insect stretching out its fore-legs. *Potatoria*, from the larva being in the habit of sucking up a drop of dew. Perhaps the most far-fetched derivation is that of *Petasia Cassinea*. *Petasia* means to spread out, to sprawl, and is as appropriate as the English name "The Sprawler." The larvæ when at rest turn the anterior segments up, as if they would look to the sky, hence the insect is named *Cassinea*, after *J. D. Cassini*, many years Astronomer Royal at Paris!! Our readers will see from what has been said how names are constructed, and from the examples given will be able to make out the meaning of most of them for themselves, without us taking up more space here.

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A. K. A. C., Shirley.—If you send your eggs we will do our best to name them, though with some species it is a matter of great difficulty, unless you have particulars of the nest and birds. Our "Birds and Eggs" now publishing would be useful to you, as colored figures will be published of

every variety of both eggs and birds, many of which have never before been figured in any work.

P. T. D., Edgbaston.—We took a figure of your Chaffinch's egg. Your holly is referred to on another page.

E. G., Huddersfield.—"Marrin's Calender" is the best book on the subject you name, but the "Naturalists' Almanack" for 1868 will furnish you with work for the coming year at any rate. We can send it for 3½d.

NOTES, CAPTURES, &C.

SNOW BUNTING AT HUDDERSFIELD.—Today (Jan. 15.) I had a pair of Snow Buntings brought in which had been killed near here. There was a flock and several others were obtained. The two brought to me were in the dark plumage.—JAMES VARLEY, Almond-bury Bank, Huddersfield.

We have many Snow Buntings here just now, but very few with much white about them, being mostly first year old birds.—(REV.) J. JOHNSON, Denby, nr. Huddersfield.

H. ABRUPTARIA.—This insect is I believe rather rare about here, the one I sent to you to name being the only one I have seen. It was found on some palings at Birchfield, near Birmingham, about the end of May or beginning of June, 1879. I have not heard of any others being taken in this neighbourhood.—P. T. DEAKIN, Edgbaston.

[You should begin to look for this insect towards the end of April, in woods and gardens near to where lilac grows, on which plant the larva feeds, in June and July.—EDS.]

"BIRDS AND EGGS"—Mr. Henry Cockayne, of Sheffield, says "I am much pleased with your 'Birds and Eggs'—letter-press and plants, especially the Eggs. The text being put under proper headings, renders it very useful for reference." Mr. P. T. Deakin, of Edgbaston, says "I am pleased with your book on 'Birds and Eggs' and think I can get another subscriber or two."

THE FOUR SEASONS:

A Story from the Book of Nature.

By LUCY FERN.

Chap. VIII.

AT THE NEW FOREST.

"Yes sir, the train will be here in five minutes, and you will arrive at Brockenhurst about twelve o'clock." The Kensington porter had only just spoken when the bell rung, and the train appeared in sight. Our little party saw to their luggage, took their seats, and after steaming through a delightful country arrived at the little station of Brockenhurst, in the New Forest. Their first thoughts, of course, were for "quarters," which they soon found, with a talkative little lady, who delighted in the name of Mrs. ROOKS.

"Before I do anything else" said JOHN, "I shall perform a little chemical operation with some soap and water." When all three had undergone the same chemical change, MRS. SUMMER went out to find something to refresh them inwardly. She did not care to send Mrs. ROOKS to "buy in" for her, for she had tastes and ideas of her own. The day was excessively hot, and during the Summer she cared little for flesh meat, she did not believe there was that strength and nutriment concealed in a beef steak and a glass of beer that people generally supposed there to be, but preferred fruits and farinaceous food. At anytime she ate little flesh meat, and never swine's flesh; eggs and milk formed the principal part of her animal food, and it was a noteworthy fact that she was seldom ailing, but enjoyed a healthy life.

Dinner being over, no time must be lost, but the three at once strolled out to see what surrounded their new home.

"You had better bring the nets and boxes," said MRS. SUMMER, "for if we go without, we shall be certain to see something we want." JOHN slung the satchel over his shoulder, and they sauntered up the road which led through the forest. They had not gone far,

when looking over a bridge, under which ran a stream as clear as crystal, they perceived some yellow water lilies (*Naphæ luteum*,) throwing their golden crowns out of the water. A little further on they turned through a gate on their left which let into the enclosure.

Before they had taken many steps SUNSHINE shouted "The net, the net," and right before them was a White Admiral butterfly, one of the most graceful of flyers, sailing on motionless outstretched wings, and coming right towards them; in a moment it was within the net, and the captor's heart throbbed with joy as she beheld it struggling within. The anxiety was increased, for before the first could be secured, a second, and a third, came sailing by; within reach, or towering up into the trees, just before it came near enough for netting. Then a Silver-washed Fritillary, or a High Brown, would give them a chance to strike at him, or a little Skipper, a copper, or a blue would dance among the grass beneath. An umbrella was now brought into use, inverted under some of the bushes, and the latter beaten with a stick, a lot of caterpillars, beetles, bugs, and other insects were thus obtained. The paths were followed, first taking one turning, and then another, until they again came upon the same stream in which they had seen the lilies, and such a sight. It was widened out to a large pool, the surface of water being carpeted with broad flat leaves; between which sprung up the large wax like flowers of the white pond lily (*Nymphæa alba*); over the lilies flirted gorgeous dragon-flies, with metallic green bodies, and blue or amber wings. Around the rocky brim grew various flowering plants and ferns, while there, on a dead twig sat a solitary King-fisher, its bright blue back glittering in the sun. The party stood for some moments admiring the little paradise, until at length JOHN, after various attempts to reach the dragon-flies, took off his shoes and stockings, and rolling up his trousers as high as he could, went in after them, and as he caught one handed it to Mrs. Summer on

shore, while SUNSHINE supplied him with an empty net. This kind of sport was continued until all their boxes were full, and the day being far advanced they returned to their apartments.

"Well" said MRS. ROOKS "did you catch any insects—any quantity about here, all the great fly-catchers come here. Where have you been? you should go to Stubby Copse, that's where all the fly-catchers go."

As soon as JOHN could get in a word he enquired where Stubby Copse was.

"You go along this road nearly a mile, then turn on the bye-road to the right and follow it to the top of the hill; that's Stubby Copse, lots of insects there, any quantity."

Stubby Copse was jotted down for the next day's ramble. In the morning MR. and MRS. SUMMER were up by four o'clock to pin and set the captures of the previous day, and by ten they had breakfasted and arrived at the promised land, and the promises were not in vain, for Stubby Copse fairly swarmed with insects—three or four kinds of Fritillaries, White Admirals in abundance, Skippers and Blues, a straggling Wood White, or a rare Burnet, while now and then would be seen the Purple Emperor, the monarch of the forest, towering high above the trees. Smaller insects were in abundance, while now and then a very big two-winged fly (*Thanus bovinus*)



THANUS BOVINUS.

would come with a fearful and somewhat unpleasant buzz about their heads, a large dragon-fly would sail along the drive and shatter an unwary butterfly, or the tail end of an adder would be seen just retreating into the grass.

(To be continued.)

MONTHLY NOTES.

ENTOMOLOGY.—Few insects are out this month. *H. rupicaprariva* may be looked for with a lantern at night about hawthorn hedges, and towards the end of the month. *P. pilosaria* may be found during the day against the boles of oak trees in woods. The females of both these are wingless, and will require well looking for. Pupæ-digging and moss-searching may be continued when the ground is not frozen, and a few hibernating larvæ may be had, but will be better if left till next month.

ORNITHOLOGY.—During the first mild days towards the end of this month, several birds, as the missed Thrush and Robin, will begin to sing. Fieldfares and Redwings may be seen about hawthorn hedges, seeking the "haws," upon which they chiefly feed. Birds are now in good feather for stuffing, and those that live in or near towns should keep an eye to the game dealers' shops, as after the game season is over sea-birds begin to come in more freely, and many birds may be thus obtained which it is difficult to get inland. Many rarities may also be picked out by experienced hands, such as Curlew sandpipers, from batches of Dunlins; great snipes, from strings of common snipes; spotted redshanks, from bundles of the common species, &c. During severe weather our young friends should reserve all crumbs and crusts for the birds, befriend them in time of need, and then nobody can find fault if you kill a specimen or take an egg for a scientific purpose.

BOTANY.—Very few plants come into flower this month, but if the weather is open a few garden weeds may be found in bloom, such as the red dead-nettle (*Lamium purpureum*), the common chickweed (*Stellaria media*) and groundsel (*Senecio vulgaris*) and perchance a daisy, childhood's favourite flower, which may always be found when the ground is clear of frost or snow.

"The Rose has but a summer's reign,
The Daisy never dies."

Another familiar plant may be found in bloom, indeed I gathered some yesterday, Jan. 9th, that is common furze or whin (*Ulex Europæus*) which is so perennial in its blooming that as the old adage has it

"When the Whin is out of blossom
Kissing is out of season."

And although the firstling blooms of Jan. are pale and scattered, compared to wealthy clusters of May and June, still they are none the less welcome as the promise and fore-runners of those to follow. Nothing can be more gorgeous than the golden glow of a sloping common or hillside covered with whins in bloom, on a bright sunny day in June. No wonder that Linnæus the father of Botany, when first he beheld the unexpected sight, should fall down on his knees and thank God for so much beauty.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

Assisted by Contributors to the Y. N.)

25. POLYCHLOROS, *Linn.* Pl. 12, fig. 1.

The Large Tortoiseshell.

"POLYCHLOROS, L., *Polychloros* Linné took this name from Aldrovandus, who says (Ins. iii., 245) "Septimus Polychloros dici queat, propter colorem diversitatem," (the seventh may be called Polychloros, on account of its varied colors). He seems to have confounded the Latin *color* with the Greek *chloros*, pale."—A.L.

Imago.—Plate 12, fig. 1. Deep fulvous with a dark border that does not quite cover the hind margin. On the hind wing this border contains a row of blue lunules. There is also a black costal blotch, with a yellowish mark between it and the border. The forewing has two large black marks on the costa, and four others in the central part of the wing.



Vanessa Polychloros, (1).
 „ *urticae*, (2).
Grapta c-album, (3).
Limenitis Sibylla, (4).



Larva.—Black with ochreous branching spines, with black tips. The body is much speckled with pale or white warts, giving it a grey appearance.

Pupa.—Similar in general appearance to others of the genus, but the points at the head are more distinct than usual, being widely separated, and well pointed.

Food Plants.—Elm appears to be the favourite food in this country, but many others are eaten occasionally—Cherry and Pear, several species of *Salix*, Aspen, Wych Elm and White Beam Tree. Newman says that Cherry is the tree generally preferred in France.

Times of Appearance.—The imago emerges in July, but retires early for hibernation. They pair in April or May, and the eggs are laid in large batches on the twigs of the selected plant. The larva is full fed by the end of June or July. It does not remain more than two or three weeks in pupa.

Habitat.—This is a Butterfly that frequents the borders or outskirts of large woods, or lanes well-bordered with trees suitable for the larvæ. It sometimes comes to sweets. In England it is most plentiful in the Southern Counties, occurring less abundantly in the Midlands, and become quite rare in the Northern Counties where it is only an occasional visitor. It is not recorded from Scotland nor Ireland. On the Continent it is widely spread only being wanting in the Polar regions, it is also found over the greater part of Asia. In the Entomologist for 1874, page 89, will be found a record of its occurrence in Newfoundland on 26 Decr. 1872. Kirby gives no American locality, but *f-album*, Boisdu, a variety of *V-album* W-V. is found in the United States. We don't know this variety, but *V-album* is very close to *Polychloros* and possibly Mr. Reeks, who made the above record, confounded the two, but if correct, it is the only one we know of, of its occurrence on the American continent.

Variation.—Not a variable species in England, and we never saw the slightest de-

parture from the type. A form with confluent spots is called *Testudo*, Esper, another is called *Pyromela*, Fre. They are both abnormal forms, not deserving distinctive names.

Allied Species.—We have already spoken of *V. album*, as being closely allied to *Polychloros*. It is richer in color, has a white spot on the costa of the hind wing, where the other is yellow, and a distinct white spot between the outer costal spot, and the black marginal band. The blue lunules of the hind wing are entirely wanting, but there is a row of lighter spots within the black of the inner border. Close as this species is, there is another (*Xanthomelas*, Esp.) still closer. *Xanthomelas* is redder than *Polychloros*, but not so rich in hue as *V-album*. The blue lunules on the hind wing, that are wanting in the latter, are larger in *Xanthomelas* than *Polychloros*. On the costa of the hind wing, the portion between the black spot and the dark margin, that is white in *V-album*, and yellow in *Polychloros* is only noticeable in *Xanthomelas* as a slightly paler shade. On the fore wing the outer costal spot comes very close to the black of the border, and there is a distinct white streak between them. In *Polychloros* this is a yellowish, in *V-album* a white spot. These are three exceedingly interesting species, and though the larvæ are said to differ considerably, they are all willow feeders. One peculiarity of the three insects is, that each have one or more of the markings in excess of both the others. Thus *Polychloros* has most yellow, *Xanthomelas* most blue, and *V-album* most white. Supposing one to have sprung from the other, or the three from a common ancestor, it is difficult to say how the divergences have taken place.

Parasites.—*Ichneumon luctatorius*, and *cessator* have both been reared from this species on the continent as we learn from the Entomologist for December last. We are not aware that any parasite has been obtained from it in this country, but as both these species are British, it is certain that observers only are wanted to find them here.

THE YOUNG NATURALIST.

E. G. MEEK,
NATURALIST,

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BRADFORD.—J. W. Carter, 23, Valley Street, Valley Road, every Thursday, from 6 p.m.

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Printed by PRESTON BROTHERS, High Street, Huddersfield; and published by MESSRS JOHN KEMPSTER & Co., 9 and 10, St. Bride's Avenue, Fleet Street, London

The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 66.

JANUARY 29TH, 1881.

VOL. 2.

WINTER.

AFTER an exceedingly mild December, the middle of January has brought a storm of unprecedented severity, and Entomologists have been most completely snowed in. So wild was the season, that we heard of *P. pilosaria* being taken, and Primroses blooming in the North of England on the first of January, but certainly they will have been looked for in vain at later dates. Those too, who were reckoning on the *Taniocampa* being out before we were well through January will have to put back their dates by a few weeks, and while we are writing it is quite uncertain, by the appearance of things outside, how long this severity may continue. Let us content ourselves, as we cannot help it, and see what we can do indoors, to assist our work when the collecting season is reached. We may assume that the end of the year saw all our captures for 1880 carefully arranged in our drawers or boxes, our duplicates exchanged or given away, and the contents of our return parcels, also placed in order in our collection. That being so, we are ready for 1881. But


is there nothing we can do now that will save time in the coming season? and first let us look over our collection once more and see that all is in order. Why, here are some drawers in which the camphor has all evaporated. Do not put off till the hot weather to renew it. It is quite true we are not very much plagued with mites in January, but they are not all dead, and in any case "prevention is better than cure." If your cases are not furnished with camphor cells, put a piece of clean paper underneath the camphor before you put it into your drawer. Camphor seems to gather to itself all the loose fragments, scales, &c., in the case, and if you pin it on to the lining, you will find it a very unsightly mark left when it has evaporated. A piece of paper below it prevents this, and can be renewed whenever the camphor needs renewing. If there is nothing else to do at your collection, get out your nets. You know you lost some specimens last year through those holes the thorn made. Get them mended, or a new net made now, when there is nothing else to do. Otherwise you will be getting out with them again in the same state, and how mortifying

it would be to let the first specimen you netted in 1881 escape through a rent made in 1880. Your sweeping net too, wants a new binding. It has roughish work to bear, and generally gives way first, just at the part that is most needed to be good. You know you partly accounted for your want of success the last time you used it, by supposing some larva had fallen through the holes in the binding. When these are done, and made as perfect as they can be, get our your setting boards. They very often harbour mites, which are conveyed by a fresh specimen to the cabinet. A wash of corrosive sublimate in solution is a useful thing, but dangerous in young hands, and the mites may be destroyed, eggs and all, by subjecting them to heat. We generally give ours a baking in the oven for a short time, every season, and find that answers every purpose. Now your boxes. Whether you use chip or cardboard boxes, you find them squash at times to the destruction of their contents. Some think boxes are cheap enough, and would rather buy more than glue tape or calico over them; it is so much trouble. But then, buying more does not preserve the specimens that were in those you sat down on. A piece of tape, or some calico cut into strips, is soon glued round and over your boxes; and then, though not safe, you are very much safer than if you use them as they are purchased. Look to your stock of pins, and get a fresh supply of those you are short of. Mr. Meek is

supplying a new pin now, it is covered in some way with a black varnish, and is specially recommended for those insects that are liable to verdigrease. It has scarcely been long enough in use to enable us to say that it prevents this. We can only say no specimen we have, that is pinned with it, has shown any signs of verdigrease yet. Some thought its color was an objection, but we do not think it is more conspicuous even on light insects than either white or gilt pins. Your store boxes also want cleaning. Throw out those dilapidated specimens, that were not good enough even to give away. They are no use, and only harbour mites. Get the boxes perfectly clean, supply them with fresh camphor, and the few specimens you may have left put all together, if they are worth preserving.

Do you keep a journal? If not, you ought, and if you do, get enough ruled for the coming season, and if you found you wanted any particulars you had not preserved last year, alter your headings accordingly. Be conservative enough to retain every thing you have found valuable, but always be ready to adopt what you know will be an improvement.

TO CORRESPONDENTS.

 We shall be particularly obliged if our friends, in remitting us small sums, will use the new Postal Orders, and send the balance in halfpenny stamps. In so remitting we would prefer that the Postal Orders *are sent us blank*. Will those who have not yet remitted for Vol. II kindly do so *at once*.

EXCHANGE CLUB.—Several boxes promised are not to hand. If not sent at once they will be too late for this year's distribution.

M. G., Hartlepool.—We think your fungi are "Truffles" *Tuber aestivum*, found abundantly in certain districts, especially in Beech or Oak woods. They are esculent and highly esteemed as a delicacy. Swine being very fond of them are often used to indicate where they abound; and dogs, by their sense of smell, may be trained for the same purpose. An instance is on record of a boy who by the exercise of the same faculty was able to discover "truffles." They abound most in the southern counties, where they form a marketable commodity.

R. J. T., Bootle.—Get Brown's "Practical Taxidermy."

S. H., Hastings.—Your notes shall appear.

CORRESPONDENCE.

Sirs,—I have been reading the first volume of the "Young Naturalist," and have been much pleased with the papers on "Conchology," and the paragraphs on Variation of the "British Butterflies." As Stainton's "Manual" is the only work I have on the *Tortrices* and *Tineina*, I have found that where I have made mistakes in naming, it has usually been through ignorance of varieties: for instance, who, with only "Stainton" to go by, would be able to name correctly *Peathina cynosbana* var. *nubiferana*; I at first took it for *Poedisca bilunana*, which, of course, I had never seen. I think an *inexpensive* work on British Lepidoptera, including the varieties, is much needed. I enclose a few notes which may prove of some interest to your readers. I remain, yours very truly, S. HUME, Clive Vale, Hasting. Jan. 19.

PRESERVING REPTILES AND FISHES.—Sirs,—Would you kindly inform me through the medium of your valuable journal the method of skinning and preserving Reptiles and Fishes. By so doing, at your earliest convenience, you will greatly oblige. Yours very

respectfully, ROBT. JAS. THOMPSON, Bootle, Near Liverpool. Jan. 22.

[Will correspondents give their methods?—EDS.]

NOTES, CAPTURES, &C.

HEDGEHOG HOLLY.—A correspondent has sent a specimen of the "hedgehog holly," a variety of the common holly (*Ilex aquifolium*), in this variety a considerable portion of the surface of the leaf is thickly beset with prickly spines, similar to those which fringe the margin of an ordinary holly leaf, this gives the leaf a very singular appearance, having no inapt resemblance to a piece of hedgehog skin, hence its common name. This peculiar state is an evidence of degeneration, caused by defective nutrition, or starvation. It has long been observed that imperfectly nourished plants show a deficiency of the *parenchyma*, that is the soft cellular portion which fills up the interstices between the veins, which form the skeleton or framework of the leaf. Hence we find that plants that are spiny or horny in their wild state when brought under the influence of cultivation, and grown in richly manured soils, rapidly lose these characteristics. Hairs, spines, prickles being defensive organs of the plant, a luxuriant profusion of them on a weak, starveling individual is a natural compensation by increased defences against predatory attacks, for decreased vigor of growth which would have enabled the plant to have grown away from its assailant. This will explain, what most people have observed, that the upper leaves of luxuriant trees of holly usually lose their spiny character, and have their margins quite entire and smooth. A somewhat analogous development has been remarked in the animal world. The Scotch have a proverb, "Hair and horn grow well upon shargars." Shargar meaning a dwarfed, diminutive, or deformed individual, and many people will have noticed in cases of sickness or debilitated states of the body how rapidly the hairs and nails will grow. As

the converse of this state too richly fed plants show an excessive development of the *parenchyma*, and the leaves become ridged or puckered up as may be seen in the savoy, a well-known variety of cabbage. When grown in suitable soil the "hedgehog" holly remains fairly permanent as a variety, and may be propagated by cuttings.—J. P. SOUTTER.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

26. URTICÆ, Linn. Pl. 12, fig. 2.

The Tortoise Shell. The King William.

"URTICÆ, L., *Urtica*, feeds on the Nettle (*Urtica dioica*)."—A.L.

Imago.—Plate 12, fig. 2a. Reddish orange, a dark border to all the wings with blue lunules. The forewing has three large black spots on the costa and one about the centre of the inner margin, there are also two smaller spots near the centre. Between the costal spots the wing is yellow, between the third one and the dark border is a white spot. The hind wing is black from the base to about the middle leaving over a band of ground color.

Larva.—Plate 12, fig. 2. Yellowish grey with a black dorsal line, spines branched and greenish.

Pupa.—Plate 12, fig. 2b. Much humped and angulate, brown, mottled with black and spotted with gold, particularly on the more prominent parts. It is generally but not always, suspended from the underside of the stalks of the food plant.

Food Plant.—Common Nettle, (*Urtica dioica*).

Time of Appearance.—There appears to be some doubt as to whether this butterfly is double brooded or not, and Mr. Doubleday records an instance where it certainly was so. The larvæ were seen in May, the butterflies in June. In July, larvæ were found again,

and the butterflies were on the wing in September. Whether this is always the case in the South we cannot say, but in the North of England we never saw but one brood, which appears on the wing in July or August, and hibernates to reappear in Spring. It is certainly earlier than the other members of the genus, and more likely therefore to be double brooded, but it is not much to our credit that there should be any doubt about so common a species. We never saw the sexes taking any notice of each other in the Autumn, and it is generally understood that they do not pair till Spring. The eggs are laid on the leaves of the food plant and hatch in about a fortnight. At first the larva are strictly gregarious, but as they get larger they wander away from each other, and do not return to close company though remaining on the same clump of nettles.

Habitat.—It is common in all parts of the British Isles, but as the food plant is rather a weed of cultivated ground, than of waste or barren land, the butterfly is more abundant among the habitations of men, than in the wilder and more desolate parts of our islands. It is common all over Europe, and in Northern and Western Asia.

Variation.—Several varieties of this species are named *Ichnusa*, Bon., is a very striking form occurring in Corsica and Sardinia. The ground color is much brighter in tone, the black spot on the inner margin of the forewing is nearer the base, and the two central spots are wanting. On the hind wing, the dark basal patch does not extend so far across. Some consider this a distinct species: we believe it is so considered by no less authorities than Mr. C. S. Gregson and Mr. Fred. Bond, F.Z.S. Mr. Newman figures a specimen taken at Hawkshead, in N. Lancashire, and said by Mr. Gregson to be this variety, but the specimen is only like *Ichnusa* in the absence of the central spots, the other characteristics we have named being wanting. Newman's variety 3 is also without the central spots, but the two outer black costal

blotches are conjoined and the whole of the hind wing is dark colored. We have a specimen with forewings exactly the same as this figure, but the hind wings are of the usual form. Mr. Newman's variety 2 has the middle costal spot united with that on the hind margin. A dark form with the spots united is called *Polaris*, and an intermediate form is called *Turcica*. The former inhabits the polar regions; the latter, Turkey and Asia Minor. This is believed to be the var *Ich-nusioides*, De Selys. Another name is also given in Kirby, *Raschmirensis*, Violl., inhabiting Northern India, but we do not know how it differs. Two very extraordinary aberrations are figured in "Les Feuille des Jeunes Naturalistes" for January, 1881. One of them was taken in Ireland and is called *Osborni*, Donc. The other is in the collection of Mr. Ch. Donckier of Donceel, Liege, but it is not known where it was taken. It is called *Seljsi*, Donc. We cannot too strongly deprecate the practice of giving a distinctive name to every abnormal form, when as in these cases, but one specimen is known. Mr. Mosley in his "Illustrations" figures a specimen from the Rev. Harper Crewe's collection, in which the ground color is a deep mahogany brown, and another showing a strong tendency to yellow. specimens with perfectly yellow ground are in Mr. Gregson's and other collections. We have one with the ground Salmon-color, and another of a very rich bright hue. This last we picked out from a number flying to thistle flowers. Its richer hue was very conspicuous on the wing and the costal spots being extra large and the yellow between them paler than usual, the Butterfly was very noticeable. We have seen no specimen otherwise normal, in which the central spots are wanting but they are sometimes very small. It is a species that varies much in size, its usual size is about $2\frac{1}{4}$ inches expanse, but we have one, bred from larva found full fed, that expands less than $1\frac{1}{2}$ inches, and several nearly as small.

Parasites.—We quoted a case (see Vol. 1, P. 94) where a French observer counted no less than 228 small ichneumons that came out of one chrysalis of this butterfly. Mr. Porritt, of Huddersfield, subsequently informed us he had noticed a similar thing, but none of them were preserved, so the species is not known. *Ichneumon luctatorius* has been reared from it on the Continent, and we have two other parasites on this species in pupa at the present time. One of them sent us by Mrs. Battersby, of Rathowen, Ireland, is in a parti colored cocoon. The other sent us by Mr. E. F. Nicholls, of Coventry, is probably dipterous.

DIFFICULTIES FOR BEGINNERS.

By JOHN E. ROBSON.

No. 3.—APAMEA OCULEA.

There is no insect of which so many specimens are brought to name as of this protean species. Beginners look doubtfully at you when you pick three or four out of their boxes, all very differently marked, and say, "these are *Apamea oculea*." "What, all of them?" "Yes, all of them." "And that black one?" "Yes, the black one is *oculea* also." "And that very light one?" "Yes, they are all *oculea*, and you will find others quite different to any of those." A look of amazement, or grave doubt, steals over the youth's face. He is not sure you are not hoaxing him, for he can scarcely credit that all those "good species" are the same insect. Not very long ago, a young man brought two extreme forms of *oculea* to name. After naming them I said, "Did I not name you some specimens like these before?" He looked rather conscious, and after a moment's hesitation said, "Yes, you named those before, but I thought you had made a mistake, so I brought them again," and even then he seemed very dubious about it.

Apamea oculea is so very variable, both in

colour and markings, that no character can be given, that know I of, by which it can be distinguished with any degree of certainty. There are several very distinct forms, which actually differ more from each other than some of them do from other species. These are all closely connected by intermediate forms, while the most nearly allied species have certain characters by which they can be separated. I scarcely hope to be able to clear away all the difficulties connected with this species, but may remove some of them, and experience will remove the rest.

Oculea expands about an inch and a quarter, and, like the other members of the genus, has a row of little tufts down the abdomen. The reniform stigma is generally well defined, and in one form is unusually distinct. In colour the wings vary from very pale brown, to black brown, and these shades occur with each form of marking. The plainest specimens are pale brown, with greyish reniform stigma, but, except a sort of mottling, there are no markings on the wings, this form varies through darker shades, until you find them nearly black, and then the white outline of the stigma shows very distinct, almost as much so, though not so large, as that of *Mamestra persicaria*. I believe these darkest specimens are the *Noctua lugens*, of Haworth. Sometimes the stigma is yellow instead of white. The next form may be described as having the costal half of the wing much darker than the inner half. This varies, not only in intensity of colour, but in the shape of the darker markings. In some specimens the dark costal mark extends across the centre of the wing, while the hind margin is also often clouded with darker shades. This, I believe, is Haworth's *Noctua furca*. A third form has the central portion of the wing, between the usual lines, of a darker shade; the basal portion of the hind margin being paler. This also is a very distinct looking insect. In one variety of it there is a well marked dark dash below the stigma, connecting the two lines: this is Haworth's

I-niger. The darkest specimens of the first form I have already said are like *M. persicaria*, but they can be readily distinguished, for *persicaria* is a much larger insect, expanding an inch and a half, and has the reniform stigma much larger. Besides this, the hind wing is whitish towards the base, with a dark grey lunule, while the hind wing of *oculea* is always dark smoky brown. Distinctly marked specimens of the second form rather resemble *A. ophiogramma*, but the costal mark on *ophiogramma* does not extend either to the base or tip of the wing. *Ophiogramma* also has always a pale thorax, with a dark brown line across the front; while the thorax of *oculea* is always dark brown. The third form, as well as some of the paler varieties of *A. unanimitis*, but from this they are easily distinguished, for *unanimitis* has a dark streak from the base of the fore wing, and another below it at the inner margin; it also always has a lunule on the hind wing. *Ophiogramma* and *unanimitis* are the only two species likely to be confounded with *oculea*, but a careful attention to the characters given will, with a little practice, enable any one to discriminate between them. I would, however, caution our young readers never to throw away a peculiarly marked specimen because they think it *oculea*; they had better be quite sure, or consult some one else. *Oculea* occurs almost everywhere, in great abundance, in the months of July and August. It comes to light, swarms at sugar, is plentiful at flowers, may be taken on palings, or on the wing. In fact, while it is out, it would be difficult to go where *oculea* could not be obtained.

PROTOPLASM.

By J. P. SOUTTER, Bishop Auckland.

Within the whole range of physical science there is perhaps no subject about which there has been more misconception and misrepresentation amongst a certain section of

non-scientific readers than the subject matter of this brief paper. Without going at all into the fierce controversies which have raged round this harmless substance, I wish, if possible, to explain concisely and plainly what is meant by PROTOPLASM, where it is found, and what are its functions, with more special reference to its place in the economy of vegetable life. Many years ago naturalists observed that the bodies of some of the lowest members of the animal kingdom were entirely composed of a structureless, semi-fluid, contractile substance, to which the name of *sarcodæ* was given, and almost simultaneously a similar substance was noticed in the cells of plants, to which the name Protoplasm was given. Further research soon showed that these two apparently similar substances were identical, and that it formed the biological boundary, or union line, common to both the animal and vegetable kingdoms, and inherent to and inseparable from vital action. Hence Prof. Huxley has well called it "the physical basis of life," a definition which has never been equalled, and will probably never be excelled. So we may look upon Protoplasm as the starting point of life, or vital energy, as distinct from dead, inert, lifeless matter; but, although co-extensive with its manifestation, it is not asserted to be the *cause* of all the phenomena of existence. One of the neatest of epigrams was thrown off at a recent meeting of the British Association when Prof. Allman was President, and the subject of his address, Protoplasm.—

"From life to consciousness the chasm
Can not be bridged by Protoplasm;
Motion is life; but chlorophyll
Can Allman's duty not fulfil."

Chemically considered Protoplasm is composed of the four elements, Carbon, Oxygen, Hydrogen, Nitrogen, with traces of sulphur. Chemists are not entirely agreed as to the exact relative proportions, but carbon forms by far the largest part, being more than half of the whole mass. Protoplasm in the pure state is found as a shapeless, structureless,

semi-fluid, transparent substance, of a glairy, tenacious consistency, very similar in appearance to the white of egg, but endowed with irritability, or the power of motion. Deep sea dredgings have furnished masses of oozy slime, which has been found to be pure Protoplasm. Portions viewed under the microscope exhibit most peculiar motions, streaming away in every direction, then retreating and contracting, again to branch out in ever varied form; never still, but instinct with life, although the highest power of the microscope fails to detect anything in the shape of organised structure. A similar substance has been found in fresh waters on the Continent, portions of which have been observed to divide spontaneously, the fragments soon attaining the proportions and properties of the parent, or original mass. Slightly farther advanced in the scale of being, in stagnant pools, &c., may be found the *Amæba*, in which we find the first traces of organisation, in the form of a small globular portion of the Protoplasm, which appears of a firmer consistency, and is called the nucleus; whilst the boundary of the mass seems invested by an incipient membrane of a slightly firmer texture, but its shape and form are so changeable as to be perfectly indefinable. Whilst you watch, from any part of the surface, finger-like processes may be protruded; if they come in contact with any solid substance suitable for its food, they encircle it, and it is withdrawn into the mass, if any indigestible portion remains, an opening is made *anywhere* in the creature, and it is ejected. This process is constantly going on, so that its form is continually changing. They increase by division into two equal parts, which immediately assume the functions and rapidly attain the dimensions of their original parent. Thus we see the *Amæba* feeds, grows, and multiplies, and is yet only a shapeless mass of Protoplasm. An exactly similar organism is seen in the white corpuscles of the blood in man, and other animals.

(To be continued.)

E. G. MEEK,
NATURALIST,

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A Penny Weekly Magazine of Natural History.

No. 67.

FEBRUARY 5TH, 1881.

VOL. 2.

EXCURSIONS.

MORE than twenty years ago, Mr. Stainton used to advertise in the pages of the *Intelligencer*, that he would meet beginners in "Burnt Ash Lane," or some other well known spot, at a certain fixed time. Some, whose courage did not bring them to an "At Home," managed to appear in the lane, and no doubt these excursions were of infinite advantage to those who joined in them, particularly when they had so able an instructor. A beginner can learn more in an hour, when he is out with an "old hand," than he will learn in a month by himself. It is so much easier to show a thing, than to describe it; so much easier to learn by seeing another do it, than from reading verbal instructions. We see no reason why in the coming season, such meetings might not be arranged at various places, by some of those willing helpers who are ever ready to aid others, and especially beginners. The space in our paper that has been used for "At Homes" is at the service of any one disposed to arrange a similar meeting

at any time during the coming season. What an advantage it would have been to us in our early days, if opportunity had been afforded of similar character, and if Entomologists in various parts of the country would take the trouble to arrange such meetings occasionally now, we are sure it would be a great boon to the rising generation. Besides the help it would be to the young, we have no doubt many a collector, who has been labouring for years almost alone, would delight to meet some whose names have been to him a "household word" for years, but whom he has never been privileged to meet. We throw out the hint, and shall be glad if any one will take it up.

In heading this paper "Excursions" we had another idea, besides that already expressed. We have travelled thousands of miles alone, in pursuit of our favourite game, but we must confess we would at any time prefer to have had a companion in our rambles. If it were only to have some one to rejoice with us when we have been fortunate, or condole with us when the reverse has befallen us, a companion is a pleasant thing. But when a kin-

dred mind is there, one whose tastes are like ours, who can appreciate our pursuit, the pleasure of an excursion is very greatly enhanced. Many people take a holiday once a year, or once in two years, and perhaps idle it away at a watering place or other fashionable resort. We do not want to decry a married man spending a week by the sea side, or in the country with his wife and family, but after having done that, if he have another week to spare, how pleasant it would be to go to Rannoch, to the New Forest, to Sherwood, to the Isle of Man, or some other of these far famed collecting grounds. But for a social man—and we believe all Entomologists are social beings, to go alone to a strange place, he has to be very enthusiastic over his favourite pursuit before he can altogether relish such a trip. Besides the companionship, a second person would make the trip less costly. Conveyances and other et ceteras cost no more for two than one. Then there is always something to be learned. It is not possible for any one to have been collecting many years, without knowing something, that few but himself does; yet he is perhaps quite unaware he has any special knowledge. If we can help in this matter we shall be only too glad. An announcement like the following will always find a place in our columns, Mr. So and So purposes to spend a week at Rannoch, collecting Lepidoptera, and would be glad of a companion of similar tastes; or Mr. Blank is going to collect Lepidoptera in the New

Forest, from the 7th to the 14th August, and will be glad to meet other collectors. His head quarter will be——&c.———or still less pretentious, Mr. Well Known is going to the Cheshire Sandhills on———of———to collect *Nyssia zonaria*, and will be glad to show the locality to any one who does not know it.

Small Societies, such as we recommended to be formed in No. 51, might also arrange excursions in another way. Working-men generally, cannot afford a trip to a distant place very often. There is not only the actual cost of the trip, but the wages not earned while away, to take into consideration. But they could spare something towards the expenses of some person going for the benefit of the whole. A dozen members could easily make up the amount needed to send one of their number to Rannoch, or other famous locality, for a week or more, with the understanding that the whole of his captures were to be shared among those who subscribed the amount. A trustworthy and experienced man should be selected, and he will certainly have a bad time, if he does not collect what will make a good return for the cost of the trip. If he has a good knowledge of other orders besides Lepidoptera, so much the better. If there are not enough collectors in the neighbourhood, a notice in our pages might answer the purpose. The———Entomological Society are arranging to send one of their members to such a place to collect insects. They will be glad to

have one or two subscribers at—— each, towards the expenses of the trip. The whole of his captures will be shared among the subscribers. Application to be made to So and So. We shall be pleased to make any such announcements free of charge, if it will aid those who are anxious to work.

CORRESPONDENCE.

Gentlemen,—Would it not be well to place in the hands of each of your agents a specimen copy of "British Birds; their Nests and Eggs: as by so doing many might be induced to become subscribers who are simply hanging back because they have not seen a copy. Wishing the "Y.N." continued success, I am, yours truly, R. WILDING, Liverpool, Jan. 26th.

[We send a copy of each edition to our Liverpool agent, Mr. Cook, where they may be seen by any intending subscriber, a copy has also been sent Mr. Pullen, at the Free Library, Derby, and we will send others elsewhere on application.—EDS.]

TO CORRESPONDENTS.

CORREGENDA.—In last week's leader, col. 1, line 5. for wild read mild.

Plate 14 is given this week, plate 15 will appear on March 5th, and plate 13 on April 2nd.

NOTES, CAPTURES, &C.

VARIETIES OF LEPIDOPTERA.—*Argynnis Selene*: I have taken 2 or 3 specimens in August, they are smaller than the June specimens by 2 or 3 lines. *Satyrus Tithonus*:—I have a variety of the female, with two extra single-centred eyespots on each wing above, and also two extra on each forewing below: the extra eyes being nearly half the diameter of the usual one on the forewing. I have also a

specimen (female) with one black dot extra on all the wings above, and the left forewing below: the right forewing below having two dots not usually present. Perhaps the first variety is common, I have not collected long, but have never seen nor heard of another specimen like it, the second variety is evidently an intermediate between the first and the type. *Satyrus Hyperanthus*:—I have 2 or 3 specimens with one black dot more on the right fore wing than on the left. *Cymatophora duplaris*: Have taken an ochreous specimen, some think this is only a faded one, but as it was in excellent condition when I took it, I incline to think differently. I have specimens taken here of what I believe are *Colias Edusa* vars. *Helice* and *Chrysotheme*, *Lycaena Alexis* vars. *Icarius* and *Eros*, *Acidalia bisetata* var. *cinereata*, *Acidalia aversata* var. *remutata*, *Bryophila glandifera* var. *par. Tortrix* (*podana*) *pyrastrua* var. *fusca*, *Tortrix rosana* var. *fusca*, *Penthina cynobana* var. *nubiferana*, and *Xanthosetia zozana* var. *ferrugina*. Besides these I believe I have taken all the common named vars. of *P. Brassicae* and *rape*, *C. russata* and *immanata*, *A. gemina* and *oculea*, *M. strigilis* and *faruncula* and *P. semifusca*.—S. HUME, 4, Overton Terrace, Clive Vale, Hastings.

C. EDUSA. IN 1877.—In 1877 I heard (before I found out the abundance of *C. Edusa*) from a schoolboy whom I then taught, that his father (a fisherman) had seen a large swarm of yellow butterflies while out fishing in the Channel, and that they had frequently settled on the masts, &c. I didn't take much notice of what the boy said till I saw *Edusa* about a week later; it then struck me that they had come over the Channel, and I now consider it almost certain. I write this because there seems to be some doubt about it.—IBID.

[No doubt this is a valuable note, and the information supplied by our correspondent seems authentic, but we do not think it clears up the difficulties connected with the abundance of *C. Edusa* in 1877. The fact that

Edusa crossed the Channel does not account for its abundance in all parts of the country, and its almost simultaneous appearance everywhere.—EDS.]

METHOD OF SETTING LEPIDOPTERA.—Pin the insect in the groove, tail towards you, take a strip of *paper* $\frac{1}{4}$ in. in width (for ordinary insects) and any length, pin one end of it with a common "short white" pin to the right hand side of the groove and well in front of the insect's head, hold the strip (with the left finger and thumb, thumb under the strip and touching the surface of the board) lengthwise of the board and over (not touching) the right wings; with another pin push the right forewing into position; a slight movement of the thumb and finger will lower the strip so as to hold *the forewing only*; next push the hindwing into position, and again lower the strip; then pin it down and cut it across with a small pair of *pointed* scissors below the pin; this finishes the right wing. For the left wings I reverse the board, bringing the head towards me; then proceed as for the right wings, except that, as the operations are reversed, the wings are *drawn* into position, and the strip is held down with the *left fore-finger* under the strip instead of the *left thumb*. Some may prefer a needle for arranging the wings, but a pin has always answered best with me, and the same pin is used for pinning down the strip; this saves a little time in putting down the needle, and picking up the pin: this is the *quickest* plan that I know of. For large moths two or even three strips may be used on each side. The second strip needn't take one-twentieth the time to put on that the first did, and often prevents the wings from curling. For "Pugs" and other small insects I use "minikin" pins, and narrower strips. The minute *Tineina* I haven't had much experience of.—IBID.

BOTYS VERTICALIS.—I notice in a back number of the "Young Naturalist" that you express ignorance of the English name of this moth; "Stainton" gives it as the "Mother of Pearl."—IBID.

[Is the insect known by this name in any locality, or to any number of entomologists? —EDS.]

OCCURRENCE OF SNOW BUNTINGS (*Emberiza Nivalis*) AT FORMBY, NR. LIVERPOOL.—On Thursday last, I went with my old warren-man, Snow Bunting catching, and I took five birds in fair condition. Since then I have received 25 more specimens alive, and several dead ones from him, and as I offer a good price each I have no doubt he will do his best to secure me more, so that I shall be enabled to enrich the collections of my friends. I enclose four specimens for your acceptance.—C. S. GREGSON, Liverpool, January 18th.

[Mr. Gregson has our thanks for the very beautiful specimens received. They are much whiter than the majority of those killed inland. Over 100 has been killed in the neighbourhood of Huddersfield.—EDS.]

EXCHANGE.

CONCHOLOGY.—I shall be glad to send type specimens of 20 or 30 of the commoner species of British land and fresh water shells to any beginner who will send me a box and return postage.—(Miss) H. L. TAYLOR, Rowditch, Derby.

I will send from 10 to 20 named types of Lepidoptera to any beginner who will send box and return postage. If marked list be sent I shall be better able to supply wants.—S. L. MOSLEY, Beaumont Park, Huddersfield.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

27, C-ALBUM, *Linn.* Pl. 12, fig. 3.

The Comma.

C-ALBUM.—Both the scientific and common names of this species are taken from the

"white C" or "Comma"-like mark on the underside of the hind wings.

Imago.—Pl. 12, fig. 3. Bright fulvous with dark hind margins, several black or brown spots and a few paler ones. The hind margins of all the wings are very much angulated, more so than in any other British Butterfly.

Larva.—Pl. 12, fig. 3a. Underside and head dark brown, upperside fulvous to the 7th segment, then *white* to the middle of the 12th segment, which is so remarkably distinct that the larva may always be known by this mark, which looks as if a drop of white paint had just fallen on it, and was still wet and shining. The head is distinguished by two minute tubercles with small branched spines, looking like horns. The whole of the larva is ornamented with similar branched spines, which are fulvous and white.

Pupa.—Of the usual form of the pupa of this genus, but more angulated on the back than others. It varies in color from dark to light brown, with bright silvery blotches. In some places the pupæ are called "Silver grubs."

Food Plants.—The larva appears less fastidious in its food than others of the genus. It is reported to have been found on Hop, Blackthorn, Elm, Currant, Gooseberry, Nettle, and Honeysuckle. Mrs. Hutchinson, of Leominster, has probably a more intimate knowledge of this insect than any living Entomologist, and has had thousands of them through her hands first and last. This lady informs us she never knew the larva feed on Blackthorn or Honeysuckle. The second brood would appear to prefer Hop, but as that plant is scarcely in leaf when the first brood are feeding, the early larvæ must of necessity find other food.

Time of Appearance.—There appears to have been considerable doubt whether this species was double or single brooded. It is most abundant in the autumn, and undoubtedly hibernates in the perfect state, re-appearing in March or April. The larva

may be found in May or June, and the imago in June or early in July. Then when the hop picking season comes on the larvæ or pupæ are generally found in much larger numbers, producing imagines in September, October, or even later. As Mr. Stainton only speaks of one brood, and Mr. Newman referring to the idea that there are two, expresses a decided opinion to the contrary, it may be well to give some grounds for a statement not in harmony with these authorities. In the first place the two broods are distinctly different. These differences will be enlarged upon under the head of "Variation," but there is quite as much diversity, in the general appearance of the two broods, as there is between the paler of them, and the Continental *Egea*, Cr. In the second place, *Egea*, the most nearly allied of all our European *Vanessa* is double brooded; the two broods appearing at the same time as those of *C-album*. Third, the larvæ found in spring, or from ova laid by hibernated imagines, always produce butterflies in June or July, and these are always the pale form. If a portion of the larvæ fed up more rapidly than the others, which is a circumstance that certainly does obtain in other groups, it might be received as an explanation; but the objection to it in this instance is, that when this occurs, a portion of the brood feed up rapidly, pupate, and sometimes emerge the same season; while others feed up slowly; and pass the winter as small larvæ. I know of no case where two portions of the same brood, emerge regularly at two distinctly different periods in the same season. Readers will perhaps remember that some of the genus *Argynnis* are supposed sometimes to emerge in the autumn, the bulk of the larvæ hibernating; in the present instance the larvæ never hibernate, and we have the great experience of Mrs. Hutchinson to warrant these statements with regard to the larvæ. This lady also points out that the greater abundance of the autumn brood "is easily accounted for, when it is remembered

how many foes the hybernating imagines must have, and how few females survive to deposit their ova, but one such may be the mother of forty pairs, which come out in warm summer weather when food is plentiful for the larvæ, and birds less on the look out than in the spring, to destroy insect life." The autumn brood remains six or seven months in the perfect state; the summer brood not a tenth part of the time. This alone would account for the extra abundance of the former, as such a much larger proportion of the summer imagines will be able to deposit their ova.

Habitat.—Woods, lanes, gardens, fields, and hop grounds, particularly fond of bramble blossom and fruit, and of plums and apples when decaying. It is an insect that often disappears from a locality for many years, perhaps never to return. Mr. Newman calls attention to its absence from "Maritime lists," but it was very abundant twenty years ago at the foot of Castle Eden Dene (Durham County), within a few hundred yards of the sea. Only one specimen is recorded from the more northerly county—Northumberland, and only one locality is given for Cumberland. It has not been recorded from Scotland. It occurs all over Europe, except in the Polar regions, and in Greece and Turkey. It is found also in Northern and Western Asia.

Variation.—As already stated, the specimens emerging in early Summer are much paler in hue than those appearing later: the ground colour is about the same as the palest portion of the darker specimens, and all the other markings are paler in proportion. On the underside the differences are still more noticeable, the early form being pale yellow-brown, with rather darker markings towards the base, and a few green spots and marks near the hind margin of both wings. The Autumn specimens are blackish brown, with a greyish band beyond the centre, and very dark hind margin. The green spots are large and more numerous, and much deeper in

shade. The underside of the male and female differs greatly. The Summer form is so different, and so constant in its appearance, that it ought to have a distinctive name, and we suggest it be called var. *Hutchinsoni*, in compliment to that lady whose liberality has enriched so many cabinets with specimens; whose knowledge of the species, as has already been said, is not exceeded by that of any one living, and to whom we are greatly indebted for information mentioned above, and for the larva and pupa figured. A variety occurs in Siberia with the spots confluent, as is the case with so many boreal forms: this has been called *F-album*, Esp. There is a very dark specimen in Mr. Howard Vaughan's collection, but this species is not subject to departures from the two forms described.

Allied Species.—We have already spoken of *Egea* Cr. as being very close to *C-album*: it is similarly marked on the upperside, but is paler both in the ground colour and the spots. On the underside it is paler brown than the late brood of *C-album*, but much darker than the form we have called *Hutchinsoni*. The light band is rather tinged with lilac, and is prettily striated with darker lines. There are no green spots, and the "C" mark is sharply angulated, forming a distinct V. Several North American species are also very closely allied, but as *C-album* does not occur on the Western Hemisphere, it does not seem necessary to allude further to them here.

Parasites.—We know of none, but Mrs. Hutchinson says, "I bred, one year or more, several parasites from the Autumn brood, certainly one Dipterous fly, and one or more Hymenopterous."

PROTOPLASM.

By J. P. SOUTTER.

Concluded from Page 103.

Gradually as we ascend the scale of life various portions become differentiated or set

apart to perform peculiar functions, till ultimately we have the most complex mechanism manifesting consciousness and intelligence. We cannot stay to define just now the border line, or debateable land betwixt the animal and vegetable kingdoms; suffice it to say that generally speaking, vegetables obtain and assimilate their food from the inorganic world, and possess the powers of nutrition and reproduction only; whilst in the animal world the food must be in an already organised form, to be fit for their digestion. In other words vegetables construct or form protoplasm or protoplasmic compounds, out of the mineral kingdom and the waste products of the animal world; whilst animals devour, assimilate, break-up, and re-arrange already formed protoplasm. Protoplasm in its pure state is rarely met with in the vegetable world, except in the reproductive organs of various seaweeds, &c. But as we have seen, it is always present and associated with life and growth. In the most lowly organised plants, such as the familiar yeast plant (*Torula*) we have the simplest form of plant life: a solitary isolated cell so small as to be individually invisible until magnified by the microscope, yet being potent with life, having the power of growth and multiplying with almost inconceivable rapidity: yet these minute plants may be said to consist of nothing but protoplasm, from or by which is secreted a surrounding wall of cellulose, a substance closely resembling starch in its composition, only it is always found in the form of thin laminæ or plates, whilst starch is in the form of grains, a somewhat similar plant forming the green scum on stagnant rain water in Summer, and the red snow of the Arctic regions (*Protococcus*) secretes from its protoplasm, minute granules of *chlorophyll* (from *chloros*, green, and *phyllon*, a leaf), which is the source of the green colour in plants, and is found in all the higher plants. It has the peculiar property of absorbing and fixing the carbonic acid gas found in the air, which is the source of the carbon which forms the

great bulk of the tissues of all plants. These lowly organisms are called unicellular plants, because they are composed of only a single cell, that is a minute sac bladder of cellulose, filled chiefly with protoplasm and water: yet these crude organisms have the power of breaking up the medium in which they float, absorbing and utilising part for their own use, and rejecting the unassimilable portions; thus changing the appearance and character of the substance in which they are immersed, as may be easily seen by watching the effect of a small piece of yeast put into a quantity of warm sweetened water. As we advance to more highly organised plants, such as the *Charas*,—an abundant water weed of still lakes and pools,—the water thyme (*Anacharis*), or the stinging hairs of the common nettle, we find the cells, although forming only part of a plant, individually much larger, and in them, under a moderately magnifying power, most interesting motions of the protoplasm may be observed: sometimes it will contract around the nucleus and gyrate round the walls of the cell; then it will spread out, and portions will stream away like rivulets to be again withdrawn, never resting but constantly assuming fresh shape and form, and ever greedily seeking for fresh food that it may grow thereby. In this connection it may be mentioned that the hairs on the leaves of the sundew (*Drosera rotundifolia*), a British carnivorous plant, are furnished with a supply of protoplasm, that they may digest and assimilate the unlucky insects that may happen to alight on them. In all the young growing parts of plants protoplasm, as the actively vital formative fluid, is present, for from and by it all the new portions are formed. It is particularly abundant in the seeds, where it is stored away for the future use of the young plant. In this stage it may remain dormant for an indefinite length of time, till again called into activity during the process of germination by suitable conditions, the most important of which are moisture and warmth.

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BRADFORD.—J. W. Carter, 23, Valley Street, Valley Road, every Thursday, from 6 p.m.

HARTLEPOOL WEST.—John E. Robson, Bellerby Terrace, Saturday, February 5 and 19, from 3 to 6 p.m.

HUDDERSFIELD.—S. L. Mosley, Woodside Road, every Saturday afternoon.

LIVERPOOL.—S. C. Gregson, Rose Bank, Edge Lane, every Sunday to end of March.

We shall be glad of additions to the list for March.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 68.

FEBRUARY 12TH, 1881.

VOL. 2.

WEEKLY OR MONTHLY.

WHEN we projected the "Young Naturalist" we had the idea that in these days of Express Trains, Electric Telegraphs, and other distance destroying contrivances, young Entomologists would welcome a paper that gave a quicker means of communication than the Monthly Magazines. To a certain extent we have been disappointed in this respect, and we are free to confess, that we doubt whether there has been much in our pages, that would not have been equally useful in a Monthly Magazine. On the other hand there are several advantages that would be secured by a monthly issue to which we will briefly refer. With all the care we could exercise we have not been able altogether to eliminate typographical errors, and though our readers will agree that our pages are now much freer from these blunders than they were formerly, they still occur too often to please either the conductors or readers. We may be able still further to rid the pages of a weekly issue from these blemishes, but we fear it is not possible

to do so altogether. If we could get compositors who were well up in scientific names or technical terms, it might be different, but that, of course, is not possible. A monthly issue would be quite different. There would be abundance of time to correct and revise proofs, and, with proper care, errors should be almost unknown. Many of our subscribers have complained that the advertisements on the back page spoiled the magazine for binding, but we have not yet seen our way to dispense with those profitable items. We hoped before this that our circulation would so far have increased that we would be able to add a cover to the weekly issue, to which the advertisements, &c., could have been removed, giving an extra page of matter to the magazine. This hope has not yet been realised, and, in fact, the subscribers to monthly parts have increased much more than to the weekly numbers. Another cause of complaint has also been that the plates were much injured by folding when in the weekly numbers, and often that the edges were chafed, and otherwise damaged in transit through the post. Our plates have been much appreciated,

and we hope to make them still more so, and we regret the impossibility of sending them unfolded with the weekly issue. We have now stated what appears to us the principal advantages that our subscribers would derive if we adopted a monthly issue only, but as those who take the paper weekly very largely outnumber our monthly subscribers we would not make the change without first consulting them. If the alteration is made we would propose to issue 20 pages of letterpress, with a *colored* plate each month. The advertisements, notices, and similar announcements would be removed to the wrapper. Or, if our subscribers would like it better, we would give 24 pages of letterpress and two *plain* plates monthly. The subscription in either case would remain the same, 6s. per annum. Those who would prefer to get them through their bookseller would have much less trouble in obtaining it, though they would pay a trifle more than they do for the weekly issue now, but would pay the same for the monthly parts.

We will be obliged if our readers will at once communicate with us on the subject, and we will endeavour to be guided as far as possible by their wishes.

TO CORRESPONDENTS.

G. P. P. B., Wilsden.—Your suggestion has been attended to. Thanks. We shall be very glad of specimens of the insects you name for our Exchange Club.

R. J. A., Sussex.—We shall be glad to see your list of the Butterflies of North Warwickshire, and of the Geometræ when ready.

J. H. S., York.—We had not sufficient members for the Magazine Club. We may try again at some future time.

"BIRDS AND EGGS"—Part 2 now ready, containing figures of Osprey and Common Buzzard, some very beautiful varieties of the latter. Mrs. Battersby has again sent us a lot of drawings of most extraordinary varieties of the eggs of several species.

NOTES, CAPTURES, &C.

THE GOLDEN EYE AT HARTLEPOOL.—A fine drake Golden Eye was brought me alive last week. It had been caught in a pool on the rocks.—J. J. DIXON, Alliance Street Hartlepool.

LESSER SPOTTED WOODPECKER IN LEICESTERSHIRE.—I have just received a specimen of this rare bird shot in Leicestershire last week. It is a male.—S. L. MOSLEY, Huddersfield, February 5th.

D. CORYLI.—On the 30th January a fine *D. Coryli* appeared in my breeding cage. The breeding cage has been kept during the winter in a room with a fire, but I should hardly have thought that amount of heat sufficient to "force" the pupa nearly four months before its time.—R. J. ATTYE, Storrington, Sussex.

HAWFINCH, PURPLE SANDPIPER, AND VELVET SCOTER AT DOVERCOURT.—On the 19th and 21st January last two specimens of the Hawfinch were shot at Dovercourt, and another seen. On the 20th two Purple Sandpipers were shot on the beach at Dovercourt, and on the 24th two Velvet Scoters were seen in the bay.—F. KERRY, Harwich.

PARTRIDGE NEST WITH TWENTY-EIGHT EGGS.—On June 12th, 1880, I found a partridge nest, containing 28 eggs, in a hedge bottom, near Wavertree. The nest was made of hay and fine roots, lined with grass

was very loosely put together, and was much exposed to the weather.--J. H. PASHLEY, 64, Troughton Street, Liverpool.

TAMENESS OF SEA-GULLS.—During the last week or ten days a most interesting exhibition of the effects of want of food—consequent on the severity of the weather—in causing animals, usually very shy of man, to put aside their fear, has been observed in Liverpool. During this time the river Mersey has been covered with floating ice, so as to seriously impede traffic, and thousands of sea-gulls have flocked round the landing stage, attracted by pieces of bread and biscuits brought for them by visitors. So tame were they that they flew within a yard or so of the stage, or drifted by, settled on floating ice at an equally near distance, screaming and fighting for the food thrown them. Some were even noticed to settle on the ferry boats on their passage across the river, in their eager desire to obtain food. I was forcibly reminded of passing Ailsa Craig, en route for Glasgow, when the remains of breakfast had been thrown overboard. Most of the species were the Black-headed Gull, but there were several very large brown birds, probably skuas.—JOHN W. ELLIS, 138, Crown Street, Liverpool.

SCARCE BIRDS AT HARTLEPOOL.—During the storm I have had brought me several birds that are not generally common about here, including the following:—One young Golden Eye Drake, shot on the North sands; another very fine bird in adult plumage, also a drake. I also saw one swimming in the outer harbour, perhaps this may be the same bird; three or four Ring Dotterels, one Dunlin, several Snow Buntings, all but one in the light plumage. Earlier in the season the Short Eared Owl was unusually numerous, and a fine specimen of the Red-necked Grebe was brought me at the same time.—J. J. DIXON, Alliance Street, Hartlepool.

HARPELLA BRACTEELLA.—I have the pleasure to announce the capture of a specimen of this rare species in my own garden here,

in June last. Not being a micro-collector, I only take such small things as by their beauty or some other striking character attract special attention. This specimen flew to my lamp one evening when I went to the greenhouse to take moths at light. It was so very pretty, and insects generally were so scarce that evening, that it was killed and set, but I did not trouble to make out what it was. It was in my duplicate box until the other day, when Mr. John Sang, of Darlington, was looking over it, and at once picked this out, as something he had not seen. The Manual was turned up, and his conjecture as to what it was, verified. It would appear that only few specimens are known to have occurred in England before, though it was previously in the list of reputed British species. The late Mr. Backhouse sent specimens to Mr. Stainton, to name, which had been taken by a young collector, in a garden, at Shotley Bridge, near Gateshead, in the summer of 1857. These were recorded in the *Intelligencer*, Vol. III, p. 179, and in the *Entomologists Annual*, for 1859, page 152, in the plate to which it is figured. Mr. Sang, tells me that one specimen has occurred since, in Wales. The larva feeds in rotten wood, and probably fed in a decayed tree stump, in the hedge, not very far from where I took the insect. I hope I may be able to obtain more next season.—JOHN E. ROBSON, Bellerby Terrace, West Hartlepool.

EXCHANGE.

DUPLICATES.—*Metichulosa*, *Aprilina*, *Suffusa*, *Pistacina*, *Libatrix*, *Artemis*, *Blandina*, *Vacinii*, *Spadicea*, *Stabilis*, *Instabilis*, *Gothica*, *Lubricepeda*, *Maura*, *Carpini*. **DESIDERATA.**—Very numerous, pupæ preferred.—R. J. ATTYE, care of Rev. F. Vernon, Storrington, Sussex.

I have several Snow Buntings, alive and stuffed, I shall be pleased to exchange for Local Lepidoptera or for Varieties.—C. S. GREGSON, Rose Bank, Fletcher Grove, Edge Lane, Liverpool.

LOCAL LISTS.

The Geometrina of Plymouth and vicinity.

(Continued from p. 68.)

By G. C. BIGNELL, M.E.S.

- E. nanata*.—Not common. May, June, and August. Homerdown, Brixton Brake.
- E. vulgata*.—Rare near Plymouth. April, May, and July. Road to Whitsand Bay Maker.
- E. absynthiata*.—Not rare. June and July. Wembury.
- E. assimilata*.—Common. May and August. Everywhere in gardens, on currant bushes.
- E. dodoneata*.—Rare. April, May, and June. Boringdon Wood.
- E. abbreviata*.—Common. March and April. Bickleigh and Cann Wood.
- E. exigua*.—Rare. May and June. Ivybridge, Whitsand Bay.
- E. pumilata*.—Rare. April and May, and again in July and August. Lee Moor Tramway, Ivybridge.
- E. coronata*.—Rare. April and May, and again in August. Plymbridge.

BRITISH BIRDS; THEIR NESTS AND EGGS.

By S. L. MOSLEY.

5. ROUGH-LEGGED BUZZARD.

Buteo lagopus, Flem.

Fjosbent wrak, (Sweden).

Bickkam, (Lapland),

Piekonna, (Finland),

LAGOPUS.—*Lagos* (Gr.) a hare; *pous* (Gr.) a foot.

Size.—Male, length about 1ft. 10 inches, expanse of wings 4ft. 2in. Female, from two to four inches larger.

Plumage.—This species does not vary so much as the last one, and the variations to which it is subject, are probably the result of age.

THE ADULT MALE has the head covered

with long pointed feathers, having brown centres and yellowish margins, giving that part of the bird a striped appearance; the space between the bill and eye is devoid of feathers but covered with a kind of bristle. The back and wings are brown, the primaries being rather darker and the secondaries tipped with lighter color. Breast yellowish-white, each feather having a brown centre. Across the belly is a broad brown band. The thighs are yellowish-white, spotted with brown and shaded with reddish. *The tarsi are clothed with feathers down to the feet.* The wings are almost white underneath, the tips of the primaries and the feathers about the first joint being dark. The tail is also whitish underneath, with a darker band across the end. During life the bill and claws are horn-color; the cere, eye and toes yellow. Dresser in his "Birds of Europe," says "the variation of plumage in this species, as with most of the Buzzards is so great that it is impossible to give descriptions of all the stages and variations of plumage."

THE FEMALE is generally paler than the male, becoming quite grey with age.

IMMATURE Birds, according to Dresser, are generally darker than adults.

THE YOUNG are at first covered with white down.

VARIETIES.—Seem to be very rare. Mr. Bond, whose experience in varieties is so great, never saw or heard of an albino or pied specimen.

Note.—The note of this species is said to be not unlike that of the Common Buzzard, and is described as "a loud squeal resembling the words ka haa." Another author says it resembles the words "Bii, bii."

Flight.—On the wing the Rough-legged Buzzard is slow and steady, beating over moors or meadows, and stealing unawares upon its prey. At other times it will soar aloft over its nest, after the manner of its commoner congener. On the wing this species may be distinguished by the *under side of the tail being white*.

Migration.—This bird, like the last, is a migratory species. Here, where it is so rare, its movements cannot be much observed, but on the Quickiock fells, in Lapland, where it is abundant, it arrives as a spring migrant early in May. It must remain till, at least, the middle of September, for the "Old Bushman" found young in the nest as late as the sixth of August.

Food.—On the Norwegian fells the food of the Rough-legged Buzzard is principally Lemming and fell mice, but it occasionally attacks other animals, such as Ptarmigan, rabbits, rats, moles, and also frogs and large insects. It seems to feed later than most of this family, being often seen hawking about long after sunset.

IN CONFINEMENT it should have plenty of room, a condition which applies equally to all birds, with water for washing, and be fed upon raw meat, or any of the animals named above.

Habitat.—The Rough-legged Buzzard is frequently met with in this country, there scarcely being a county in which it has not occurred. In some of the south-east and eastern counties it has been common in certain years, particularly on some of the rabbit warrens of Norfolk and Suffolk. In north-west Yorkshire, about Skipton and Craven, it is occasionally met with, and one is the possession of Mr. Smithurst, of Leeds, which he captured in Bishop's wood, near Selby, when on a mothing expedition. In Ireland it is said to be rare, but no doubt, both there and in many other parts of Britain, many a fine specimen has been killed, the only record left of it being two rusty nails and a damaged skull perhaps on an old barn door—not much to identify a species by.

ABROAD it is common over the northern parts of Europe; not rare in Germany, Holland and Belgium; it occurs also in parts of Russia. In southern France, Italy and Sardinia it is rare, and does not seem to have been met with in Greece, and it is very

doubtful if in Spain, Portugal, or Africa. It is found in Asia. This species does not occur in America, it having been confounded with a closely allied species—*B. Scanti*, Johanny.

Nest.—In Britain the nest of this species has been seldom met with. One is recorded from the neighbourhood of Scarbro, but it is in the wildest parts of Scotland that it should be looked for. On the Lap fells the first nest found was on the 21st of May. It is placed in a tree, or on a rocky ledge up the side of the fells. The nest is described as a coarse edifice of sticks, very loosely put together, and lined with grass and moss.

Eggs.—Three eggs is the usual number laid by this bird, but occasionally a nest is found containing four, five, and in one instance even six. Many are almost undistinguishable from those of the common Buzzard and Kite. The markings are generally more numerous, and larger, and more defined, but vary much in color. Some specimens are dingy white with a few faint marks. One (pl. V, fig. 3.) received from the late Mr. J. H. Dunn, of Stromness, is marked not unlike some specimens of the Sparrowhawk; and another (pl. V, fig. 3.) which I have copied from "OOTHECA WOOLEYANA" is beautifully streaked with pale brown and grey. The specimen from which this latter figure was taken came from Lapmark.

DIFFICULTIES FOR BEGINNERS.

By JOHN E. ROBSON.

No. 4.—MIANA STRIGILIS.

While most of the difficulties beginners have to contend with, occur when two species are very nearly alike; there are one or two insects, that by their extreme variability, make a difficulty of another sort; for the young collector expects he has got three or four distinctly different insects, and is both amazed and disappointed when he finds his

error. In the last article under this head I gave some account of one of these protean species *Apamea oclea*, I now propose to take the insect that stands next in most of our lists, *Miana strigilis*. This species is considerably smaller than *oclea*, expanding only one inch, or very little more. It is so variable that Haworth named no less than four forms of it, as distinct species, but there is nothing like the extreme diversity of marking that is found in *oclea*; the pattern being always the same, and the color only, making the differences. It has the usual noctua markings, but the darkest form is nearly an uniform brownish black, the lines and stigma showing but faintly. In the darkest specimen I have there is a perfectly black dash below the stigma, and connecting the inner and elbowed lines. This black dash is very characteristic of *Strigilis*, being found in all the varieties, and in most of specimens. I described a similar mark in the variety *I-niger* of *Oclea*, and it appears again in other species,—*P. chi*, for instance. This darkest variety of *Strigilis* was called *Æthiops* by Haworth. In the next form the space beyond the elbowed line is paler than in *Æthiops*, and the portion of the elbowed line below the black dash is quite white, the space between the lines is more mottled than in the darker form, and the insect generally is browner. This is Haworth's *latruncula*. Of course there are specimens intermediate between the forms here described, and a regular gradation might easily be made, from the very paler varieties yet to be mentioned, to the nearly black *Æthiops*. If such a series were formed it would be found that the chief changes were brought about, by the space beyond the elbowed line becoming paler more rapidly than the space between the lines or nearer the base. Following the last described form, the next has more of the elbowed line white, and in some specimens, nearly all the space between it and the subterminal line is white also, or whitish grey, sometimes with a rosy flush. The space between the lines and

nearer the base is paler than before, and more mottled, but looks darker from contrast with these much lighter shades, the black dash between the lines is nearly always distinct. In this variety the lower half of the inner line is often as white as the lower half of the elbowed line is in *latruncula*. This distinctly marked form is the type of the species, and is the *strigilis* of Haworth. Some specimens occur in which the central portion of the wing is much browner in hue, and, so far as we have seen, these brown specimens rarely have the hind portion of the wing so white, as when the centre is blacker. The palest form of the species is almost as pretty as the last one. In it, all the lines are white, margined with black; the darker portions of the wing are very pale grey brown, and though the paler portion does not contrast so vividly with it, it is quite as distinctly white as in the type. This form is the *præduncula* of Haworth.

We are aware of the difficulty of describing in words the marking and hue of an insect, but if our readers will take a long series of this species, and, without any reference to markings, arrange them in a row, with the darkest at the top, and the palest at the bottom, they will find they have arranged them in the order in which we have described them, and they will have no difficulty in separating the forms, and connecting them by intermediate gradations. There is no other species that can readily be mistaken for this. The difficulty is solely in the diversity of the species itself, but a careful study of the marks will always guide you right. Too little attention is given by beginners to minute detail, and if they think they know an insect by its general appearance, they do not care to examine it more carefully. To such we would recommend this species, and that last named under this head, and they will learn themselves more, in a couple of hours careful examination and comparison, than we could teach them in any number of articles.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

Genus V, *Limenitis*, F.

"*LIMENITIS*, F., *Limenitis*, harbour keeping, an epithet applied to several divinities."
—A.L.

A genus of about 30 species, some of which are of considerable size. "The species are natives of Europe, Asia, the Indian Islands, and North America." Seven are named in Dr. Staudinger's catalogue, but only three occur in Europe, and but one in Britain,

28, *SIBYLLA*, Linn. Pl. 12, fig. 4.

The White Admiral.

"*SIBYLLA*, F., *Sibyl'la*, a Sibyl."—A.L.

Imago.—Pl. 12, Fig. 4. Rusty black with a row of white spots commencing on the costa of the forewing and continuing with more or less interruption across the central part of both wings. The fore wing has also a disc spot, often indistinct, two or three others near the tip and one on the hind margin. There is also a row of indistinct black spots near the hind margin of both wings. The markings on the underside are similar in character but varied in colour, the base of the wings being pale blue and a good deal of yellowish brown beyond the white band. The row of black spots is more distinct by being on a paler ground.

Larva.—Pl. 12, fig. 4a. Bluish green, paler on the sides. Spinacular line very narrow, white, spines, pale reddish brown, pinker at the tips, branched. Head and pro-legs reddish brown. The larva is rather stouter in proportion than those of previous genera; the head and second segments are much narrower than the others.

Pupa.—Pl. 12, fig. 4b. Green with brown markings, and metallic blotches, both gold and silvery in hue. In shape it is very much angulated, the wing cases projecting on the back, and on the other side are two very prominent projections, the head, has two ear-

like processes. It is not large for the size of the butterfly.

Food Plant.—Honeysuckle (*Lonicera periclymenum*).

Time of Appearance.—The butterfly appears at the end of June, and continues on the wing during July. The eggs are deposited singly on the upper surface of the leaf, and the larva hatches in about a fortnight. It grows slowly, and after a time draws down, the uneaten portion of the leaf making a secure retreat for the winter. The leaf is then carefully fastened to the stem from which it grew, so that when it falls, it shall still remain attached to the food plant. In this the larva passes the winter, and when spring arrives, it wakes up, feeds more rapidly, and by the end of May is full fed. We are indebted for much of the foregoing to Mr. Newman's graphic account of the species. A very detailed description of the shedding of its last skin will be found in the fourth volume of the Entomologists' Monthly Magazine, from the able pen of Mr. W. Buckler. The final stage lasts about three weeks.

Habitat.—Woods in the south of England. It does not occur in either Scotland or Ireland, and in England scarcely extends to the Midlands. It is distinguished for its exceedingly graceful flight, which is only excelled by that of the Purple Emperor (*Apatura Iris*). It occurs throughout Central Europe, but is always local, and is also found in Northern Asia.

Variation.—This species has no named varieties, and is tolerably constant to the type, except that the central band is more or less broken by the darker ground colour. We have one in which very little of the band is left; but there are specimens in the rich collection of Mr. Bond, and others, in which not a trace of it remains, the entire surface of all the wings being rusty black, with only the outer row of darker spots traceable.

Parasites.—We have not heard of any being reared from this species yet.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 69.

FEBRUARY 19TH, 1881.

VOL. 2.

HOW TO BEGIN

COLEOPTERA COLLECTING.

THERE are probably more collectors of Coleoptera, than of insects of any other order except Lepidoptera, and it is therefore fitting it should be taken next in turn. Instructions such as we propose to give have been published many times before in other books, and those who have read them must not expect to find anything new, but as some of these books are now almost unattainable, it is necessary we should endeavour to teach those who have no other guide. Beetle collecting is something very different, from collecting Butterflies and Moths. Beetles may be handled without any fear of spoiling them, while the slightest touch on the wing of a Lepidopterous insect effectually destroys its beauty. It is not therefore so necessary that every Beetle be placed in a separate receptacle, as it is with Moths or Butterflies. They are seldom taken on the wing, and seldom reared from their earlier stages, and altogether the *modus operandi* differs considerably. The nets required for

Beetle hunting are a strong wide-mouthed net, that can be used either for sweeping, or to hold under a tree, or bush, which is beaten with a stout stick. For this purpose (beating) some prefer an ordinary umbrella, which perhaps can be used with great advantage at times, but we would advise if an umbrella be used, that the inside, above the movable ribs, be covered with some light colored fabric, in the way that ladies parasols are now lined. This prevents the objects you are in search of falling in among the wires, where they are not so easily got out. The light color will also make them more conspicuous by contrast. Another form of net is needed for collecting Water Beetles, and it should have a longer handle, or means for adding to its length. The bag of this net should be made of a more open material, so that the water will run easily through it, otherwise your prey will escape, particularly when rather active, as most water beetles are. For bark collecting a strong ripping chisel is needed. A good long-bladed knife will also be useful in more cases than one. An ordinary dinner knife will do, but one of those "dagger" knives,

with a spring in the back to prevent the blade closing is perhaps more portable and convenient. If it is not too much trouble to carry it, a square of some waterproof material will be worth procuring. It serves to kneel on among damp herbage or swampy places, and will also be useful for shaking tufts of grass, moss, &c., upon.

To bring home your captures, you will need for larger species a few chip boxes, but beetles have strong jaws, and some species are quite capable of eating their way out. For smaller species glass bottles are generally used. These should bewide mouthed, with a quill inserted through the cork, so that you can drop your captures in without taking the cork out every time. A bit of crumpled blotting paper, or muslin, in a bottle of this sort is an advantage. Smaller bottles, or straight glass tubes corked at each end for specialities, should also be procured. A corked quill is a good substitute. As many Beetles are carnivorous, and would commence to devour their fellow prisoners even in a glass bottle, it is well to have some means of killing, or stupifying them, as they are taken. The ordinary cyanide bottle may be used for this purpose, or bruised laurel leaves may be substituted for the blotting paper or muslin. We have seen a very useful little collecting case, which anyone could fit up for themselves. It contained three bottles, the centre one for chloroform, and the outer ones for captures. To the cork of the chloroform bottle was attached

a camel's hair pencil, and when a few Beetles had been placed in one of the outside bottles the corks were exchanged, and the fumes from the chloroform on the pencil soon killed or stupefied the captures. Then the pencil, with a fresh dip of chloroform is transferred to the other bottle which by this time will have some "live stock" in it.

We cannot spare space to-day to give instructions in using these implements or on the general means employed in collecting Coleoptera. This must serve for another article, and a third or setting, will complete the subject.

NOTICES.

Orders or other communications must be sent to JOHN E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Woodsie Road, Beaumont Park, Huddersfield. Orders may also be sent to the printers or publishers.

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TO CORRESPONDENTS.

P. T. D., Edgbaston.—You have made miscalculation about the monthly issue of the *Young Naturalist*. Even if we issued the 20 pages of letterpress you would not lose 120 pages in a volume, besides 20 space would be taken up by the Notice Scales of Charges, &c., and we should be able to utilise the cover to our readers' advantage. You would get a *colored* plate each month, which would be worth half the subscription, or an extra plain one, and four more pages of text. We know many of our readers would prefer to have weekly, but it is a great labour on some of our agents, who have 30 or 40 papers

deliver each week among subscribers scattered over a large town. We have not had much expression of opinion on either side, and should like to hear from those who have any desire in the matter.

NOTES, CAPTURES, &C.

Messrs. Williams and Norgate have sent No. 39 of their "Foreign Book Circular," contains a selection of books on Natural History, &c., in French, German, and other languages.

GOOSANDER AND SEALS IN COUNTY DURHAM.—I have to record a Goosander being shot near Byers Green, County Durham, on the 23rd January, in the river Wear. It is a male. Perhaps it is also worth noticing that a very large specimen of the Common Seal was captured on the 24th December last, near the mouth of the Tees.—THOMAS ANN, Byers Green.

LANCASHIRE & CHESHIRE ENTOMOLOGICAL SOCIETY.—This flourishing society held its fifth annual meeting on Monday evening, January 1st, the President, Mr. S. J. Capper, in the chair. The officers elected for the new year were:—President, Mr. S. J. Capper; Vice-president, Mr. Nicholas Cook; Secretary, Mr. J. W. Ellis. This society now numbers about 50 members, and the balance sheet showed £5 18s. 9d. in the hands of the secretary. It is at present under contemplation to devote this balance to the commencement of an Entomological Library, but the matter is left open for further discussion. This society meets at 7:30 on the last Monday in each month, in the small lecture room of the Free Library and Museum, William Brown Street, Liverpool, and any entomologist in the two counties desirous of joining may have a copy of rules by applying to Dr. Ellis, 138, Town Street, Liverpool.

V. C-ALBUM IN TURKEY.—In your article on *Vanessa C-album* you say that "it occurs all over Europe, except in the Polar regions,

and Greece and Turkey." I beg to state that I have taken it commonly in the latter country, in the neighbourhood of Gallipoli, in July and August, 1878. The Turkish specimens are considerably larger, and of a paler hue than British examples, but they do not differ in any other particulars.—GERVASE F. MALHEW, Instow, N. Devon.

V. URTICÆ DOUBLE BROODED.—Having read your paper on *V. urticæ* with great interest, I notice particularly the doubt raised whether it is double-brooded. I may mention that for a certainty it is double-brooded in certain seasons, as I have found last year the pupa (suspended by the tail about 6 ft. high on the outside of a building) in June, which emerged. I also found the larva towards the end of September (almost full fed) which emerged in the second week of October. The insects of both broods varied in size.—H. ANDREWS, Aldborough, Boro' Bridge.

EXCHANGE.

DUPLICATES,—*Ægeria*, *Auriflua*, *Dominula*, *Oxyacantha*, *Dispar*, *Orbona*, *Fimbria*. DESIDERATA,—*Davus*, *Hectus*, *Fasciuncula*, *Rubricosa*, *Dentina*, *Myrtilli*, *Anomala*, *Fasciaria*, *Obscuro*, *Thymiararia*, &c.—H. FRERE, Queens Road, Kingston-on-Thames.

NATURAL HISTORY DIARY.

By J. W. CARTER, Bradford.

I have thought that a diary of Natural History observations published from month to month, might be of some interest to new beginners, in the fascinating pursuit of Natural History objects. Moreover, the following gentlemen have kindly promised to furnish me with monthly notes for the purpose of incorporating with my own:—Messrs. S. L. Mosley (Huddersfield), J. Firth (Bradford), E. P. P. Butterfield (Wilsden), and H. T. Soppitt (Saltaire), all of which will be acknowledged by their respective initials. I

shall be glad at any time of further assistance.
January, 1881.

2nd, *C. brumata* and *H. defoliaria* still out, and in fair condition, females of latter in crevices of bark, Shipley Glen.—(J. F.) Very mild, *C. brumata* on the lamps at night.—(S. L. M.)

3rd, Chaffinch heard calling.—(S. L. M.)

7th.—Several larvæ of *N. xanthographa* and *X. rurea* dug up from near the roots of grass, apparently frozen, but on bringing them indoors they immediately began to show signs of life, and walk about.—(S. L. M.)

16th.—Two Starlings observed at a house end, going under the eaves, probably selecting a breeding place.—(S. L. M.)

23rd.—*Dryophanta scutellaris* bred.—(S. L. M.)

29th.—Several (seven or eight) White-fronted Geese observed hanging in the Bradford market, four or five have been in the Huddersfield market. Also good numbers of Starlings, Fieldfares, Woodcocks, Jack and Common Snipes, &c., from which good specimens may sometimes be picked for preservation. Several Snow-Buntings and many Bramblings seen in the live-bird dealers shops, caught during the present storm, which has been of unprecedented severity from the 4th, but yesterday a very gentle thaw set in, and to-day the surface frost has gone. Birds have been very tame, and fearless. In the neighbourhood of Huddersfield more than 100 Snow Buntings have been obtained.—(S. L. M.) Several small flocks of the latter have been seen, and some obtained on the moss here.—(J. W. C.)

31st.—Hedgessparrow heard singing.—(S. L. M.) Rooks observed in their breeding quarters.—(J. F.) *P. pilosaria*, first specimen for the season, taken at Shipley Glen. In *Young Naturalist*, p. 94, it is stated that this species may be taken from the boles of "Oak

trees." So far as my experience goes it is not at all confined to Oak, but may be found on Birch, Alder, Hazel or any other tree which may be in the immediate vicinity. *Pilosaria*, too, is liable to great variation here, a fact which I believe is not generally known. Specimens of a dark olive-green color have been taken regularly, but last year three or four beautiful black specimens were obtained, one in my collection will ultimately be figured in Mr. Mosley's "Varieties of British Lepidoptera." It would be interesting to hear the experience of others, with regard to the variation of this species.—[J. W. C.]

NOTES ON V. C-ALBUM.

By Mrs. HUTCHINSON, Leominster.

I cannot at all agree that there is any doubt as to *V. C-album* being double brooded. It certainly is much more abundant in the autumn in most seasons, than at any other part of the year, but some years we in vain have searched for the species in any stage. The hibernated butterflies, more or less worn, occur as early in the Spring as other species of the *Vanessidæ*. Any bright sunny March day might cause them to be on the wing. In confinement the eggs hatch about two days after being laid, and the larvae feed up quickly. I never knew one linger behind the others, although there may be a month's difference between the emergence of the first and last imago from the same brood, but this depends upon the ova being laid on different days, judging by the insect in confinement. A bright summer day may cause eight or nine ova to be laid, but if followed by dull weather, a week or a fortnight may follow before another is deposited. By the end of May the hibernated insects are gone.

I compile the following from my notes on insects set:—

1868.—We did not take a single specimen during the spring or summer, but in the autumn had a few pupæ given us, which emerged from September 6th to September 25th.

1869.—We again failed to take a spring or summer specimen, but obtained in the autumn larvæ and pupæ, which emerged from September 10th to October 12th. On the 30th October we took a butterfly on the wing.

1870.—Again failed to capture a spring or summer butterfly, but in the autumn the larvæ and pupæ were very numerous, and began to come out September 4th, but being ill and from home till December, I cannot say how late they continued to emerge.

1871.—Again this autumn, larvæ and pupæ were abundant, although I have no note of any imago being captured in spring or summer. I was from home till October 14th. On the 15th 8 *C-album* emerged, on the 16th 7, on the 19th 2, on the 23rd 1, and on November 1st 5!!

1872.—Again in the spring and summer no record of one being seen. In the autumn they began to emerge September 23rd, and continued coming out up to October 22nd.

1873.—From home the whole of the year.

1874.—No Spring imago obtained; but one larva was found on Gooseberry, which came out an imago on July 2nd. In Autumn very scarce. I have only 9 pupæ recorded, but I may have given others away.

1875.—No Spring imago obtained; but two larvæ were found on nettle, which produced imagines on July 1st. Plentiful in Autumn, they began to emerge September 16th, and continued coming out till Nov. 12th, on which day I reared one, also one on the 10th. These are the latest records I have of their emerging.

1876.—Throughout this year we utterly failed to obtain larvæ, pupa, or imago. I wanted them much, and offered a higher reward than usual. It seemed strange, following a most abundant year.

1877.—This Spring we took a female, and

obtained a brood which emerged July 4th until 19. In the Autumn I again failed to get larvæ, pupæ, or imagines.

1878.—We sought much after a Spring imago, but failed to capture one, although two or three were seen on the wing. In the Autumn had larvæ and pupæ brought, which emerged Sep. 17th until Oct. 20th.

1879.—I have no record of either larva, pupa, or imago being ever seen this year. I certainly did not set one.

1880.—Two females captured early in Spring, and some fine insects reared. The imagines began to appear June 29th, and continued coming out until July 9th. Both were taken ovapositioning on nettle. There was a short and poor hop gathering and rather late. The gatherers reported "empty cases" being common, and they got me many that had not emerged. They came out in confinement from Sep. 18th to Oct. 13th. Many seen on the wing.

I can go further back if you desire it, but do not exactly know where to search for the old note books of "setting." How bitterly I regret I did not make full notes of when first and last seen on the wing, and fifty other particulars.

NOTES ON COMMON DIPTERA.

By S. L. MOSLEY.

A great obstacle to the study of the Diptera is the difficulty experienced in getting specimens named, and without names the study of any order is no easy task. Books on the subject are scarce, expensive, and perhaps printed in a foreign language, and however willing he may be one does not like to trouble another to name a multitude of the very commonest species. If a few named types can be obtained in each family or genus, then the work is much easier, as the student will at any rate be able to classify his insects, even if he has to do so without names.

For the benefit of those who, like myself, desire to know more about this "neglected order," I will describe a few species which are comparatively common, which the student will be able to take almost any season, hoping it may induce some one to enter upon the study of these interesting insects. Those who are making educational collections such as were described on p. 361, vol. i. will find it an advantage to have their specimens named, and for that purpose I may go on to some other orders after I have given a few short papers on the Diptera.

I shall make no attempt at classification, simply selecting the common species or those interesting for their beauty or some other peculiarity.

For my knowledge of names I am greatly indebted to Dr. Meade, of Bradford, who has most obligingly determined any species I have sent to him for that purpose.

Diptera may at once be distinguished from all other insects by their having only two wings, generally clear, but sometimes dark, or covered with dark markings, and the family, or even the genus may be determined by the arrangement of the veins or wing-bones. The hind wings are only represented by two small knobs.

THE GENUS MUSCA

May be known by their robust form, the thick proboscis, which is soft and obtuse, and can be retracted or propelled at pleasure. Walker enumerates over 30 species. I append a figure showing the arrangement of wing-bones.



WING OF MUSCA VOMITORIA.

M. domestica.—This is the common house fly, and so abundant everywhere as to need no description.

M. vomitoria.—The common blue-bottle, or blow fly, common everywhere, and also well-known. There are two species of blue-bottle,

the present one may be known by having the head clothed beneath with reddish tawny hairs, and the wings tinged with brown at the base.

M. erythrocephala the other species, has the hairs beneath the head black, and the wings grey.

M. Caesar and *Cornicina*.—Green-bottle flies. These two species are very closely allied. The body and thorax are shining bluish, or golden green; eyes brown, and legs and antennæ black. *Caesar* varies in expanse from 6 to 10 lines, while *Cornicina* only varies from 7 to 9. The front of the head in *Caesar* is covered with white tomentum in front, and the palpi are tawny. In *Cornicina* the tomentum is silvery and the palpi black. I have taken both species on the window, and found them under stones in quarries, in the Autumn, when seeking *D. Templi*.

M. Corvina.—This is about the size of the common house fly. The antennæ and legs are black, eyes brown, with a stripe of silvery tomentum underneath in front; thorax black with hoary tomentum, and four black stripes, broader in the male than the female. Body brown, with base and line down the middle black, and covered with longer hairs.

(To be continued.)

THE FOUR SEASONS:

A Story from the Book of Nature.

By LUCY FERN.

Chap. IX.

AT THE ISLE OF WIGHT.

Thus day after day was pleasantly spent in the New Forest; one would be devoted to searching the trunks of trees for the smaller moths; another to beating for larvæ; another to pupæ digging. Then a night would be spent in "Denny Wood," or some of the enclosures near Lyndhurst, sugaring for the glorious "crimson underwings." Then they would have a day on "Parley

Heath" after the special moth to be obtained there—the Speckled Footman (*C. cribrum*). The last day of their stay they took the train from Brockenhurst station to Lymington, from thence by boat to Yarmouth, in the Isle of Wight, and from there they walked across the island to Freshwater Bay. Going down to the beach they find that the tide is out, so shoes and stockings are taken off, and a search is at once begun. Beautiful little crabs, anemones, and various colored sea-weeds are handed out, and placed in proper receptacles. The latter were to be washed in fresh water, and then pressed between sheets of blotting paper, and when sufficiently dry were to be mounted in a book as a memento of their visit.

"Hallo!" said JOHN, as he lifted up a large piece of matted sea-weed from the sand, "just look here, life without end." He had disturbed the peace of some hundreds of the little "sand-hoppers" (*Talitrus Locusta*) which were jumping about in all directions; then he picked up a mussel, which, on opening, was found to contain a living pea-crab (*Pinnotheres pisum*); then a fine shell, or an interesting zoophite. The next object that arrested their attention was a very pretty white longish bivalve shell, thicker at one end than the other, and with serrated ribs running lengthwise.

"What do you call this?" said JOHN.

"I believe it is a *Pholas*," said Mrs. SUMMER.

"Yes, a *Pholas*, that is the name, I thought it was, I have read of them boring into timber, and even into hard rock, but what a delicate shell for such work!"

Another object of interest was now picked up, it was a piece of sea-mat (*Flustra*), generally looked upon by visitors to the sea shore as a sea weed, but which is no plant at all, but an animal organism. If a piece of sea-mat be examined with a pocket lens, it will be found to be constructed of a series of minute cells, each of which once was inhabited by a living zoophite.

The tide was now rapidly advancing

towards high-water, which drove the party from the beach to the pastures on the cliff top. They had not been long there when their attention was arrested by the call notes of birds, which were new to them, but upon getting near one they were able to see they were Stonechats, which had bred among the furze.

A grassy slope was selected, and the three sat down for lunch, where they had a good view of the white chalk rocks, and the wide expanse of sea, beyond which lay the French coast. Presently a native passes, and John determined to have a word with him.

"Good afternoon," says he, "can you tell me how high those cliffs are?"

"Why, Sirs," answered the weather beaten boatman, "yonder at Sun Corner they reckon as its about 600 feet, and yet men go over the top, and are let down by ropes to get the sea-birds' eggs."

"Sea birds do breed in those cliffs then?" enquired Mrs. SUMMER.

"Ah! bless ye, mam, I should think they does; you should ha' been here this morning at day-break; you would ha' thought the face o' the cliffs were falling into the sea: thousands and thousands o' birds! but they have gone out to sea now fishing; ye may see a few here and there, odd ones just coming in, but nothing like what there will be in a few hours."

A merry twitter somewhere among the grass caught SUNSHINE's ear.

"Hark! a grasshopper!" and crouching on her knees, SUNSHINE crept gently towards the place from whence the sound came. Gently, and still more gently, as she neared the object of her attention, until she was within three feet of him, and could distinctly see his hind legs in quick vibration against his wing cases which caused the noise. A little nearer, and just as her hand was about to lay hold of him, he took a tremendous jump and bade her good-bye.

(To be continued.)

E. G. MEEK

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 70.

FEBRUARY 26TH, 1881.

VOL. 2.

WEEKLY.

WE were not prepared when we wrote the article headed "Weekly or Monthly," and suggested the abandonment of the weekly issue, for such an unanimous burst of disapproval from our readers. We had heard one side only before, the side of those who had something to complain about; but those who were satisfied had not seen occasion to speak. Since the article appeared we have heard the other side, and the kind and feeling letters that have been sent us by many valued correspondents, almost unanimously express a wish that the paper shall be continued as a weekly publication. Mr. G. F. Mathew, F.Z.S., writes:—

"I think the usefulness of the *Young Naturalist* would be greatly diminished if its weekly issue were brought to a close. There is no publication of a like nature, and I am sorry to think you have not sufficient subscribers to enable you to dispense with the advertisements on the last sheet; though I do not see that there is anything very objectionable in them. The last page of the dear old *Entomologists' Weekly Intelligencer* was chiefly occupied by advertisements, and I do not remember that anyone complained of them: indeed they were often useful to refer back to after they were

months old. The benefit of a weekly paper is the fact that it does appear weekly, for frequently news a month old is of very little use. Again, entomologists have ova of Lepidoptera to exchange or give away: this could be done if the paper was weekly; but it would hardly be possible if it appeared only monthly; and so for these reasons I say decidedly keep to the weekly issue."

Mr. C. H. H. Walker, of Liverpool, writes:—

"If I might speak for myself I would express the desire that it should remain as hitherto: for I deem the week incomplete if I have not my Y. N. to discuss: a feat I always accomplished to my extreme satisfaction. I have had Vol. 1 bound, and it makes a really handsome little volume, notwithstanding the repetition of the advertisements. The folds in the plates do not show in the least, because of the damp and pressure to which a book is subjected. As the edges of the volume are 'trimmed' the ragged look of the plates entirely disappear. To all who have complained I would say, 'Get the volume bound, and well, too.'

Many similar extracts might be given, did space permit, but they cover the same ground, and in deference to such opinions, which harmonize very much with our own feelings on the matter, we can only say that the weekly issue will be continued.

Several of our readers have, however, expressed a strong desire to have

two plates monthly, instead of one, and we propose to make a change with reference to the first number in each month that will perhaps meet the views of some of those who object to the Notices, List of Agents, &c., appearing weekly, and will also enable us to issue two plates instead of one. This change is, that the first paper each month shall consist of two plates only, in a cover, which shall contain the advertisements, Notices, List of Agents, Exchanges, and any Captures of importance. This cover shall not be for binding with the Magazine, and Captures, &c., that are on it shall reappear in the next number, if they are of sufficient interest. By this means we shall be able to remove from the middle of each number the most objectionable part, and the space saved weekly will be filled with other matter. Of course, the second plate is an additional expense that will not be covered by the four pages of matter that will be saved once a month. We very deeply regret that we cannot afford to do all we would like to do. Each week leaves us a considerable loss, and while we are willing to do the best we can, we do not think we would be justified in increasing our expenditure until the circulation is larger. The circulation has certainly gone on increasing from the first, and is still doing so; but so many things are pressing upon us for attention, and especially for illustration, that we hope the proposal we now make will be generally accepted. If it does not

answer the purpose as we expect it will, we can very easily return to the present system. One reason why we desire to have some pages not to be bound up is that we want to afford space for books either for sale or exchange, or wanted. Apparatus, boxes, &c., are also often sought to be disposed of, and we propose to insert advertisements of this nature at the uniform charge of 4d. for every 12 words. Parties may advertise in their own names, or, if preferred, they may, on sending an additional stamp, have their replies directed to us, and these will be forwarded to the advertiser at the end of a week. We shall have more to say about this shortly, but as such advertisements can only appear once a month, we make this announcement now so as to give the opportunity to parties of advertising in our next number.

NOTES, CAPTURES, &c.

VANESSA URTICÆ IN FEBRUARY.—A specimen of *Vanessa urticæ* was brought me on the 17th of this month. It had been taken on a workshop window, and was very lively. It was a female, and in good condition. Considering the severe weather we have had lately, I was much surprised to see the species stirring.—JOHN E. ROBSON, West Hartlepool.

VANESSA ANTIOPA AT SEATON SNOOK.—Mr. Dale, a beginner, brought me some insects to name, on Saturday last. Among them was a very fair specimen of *Vanessa Antiopa*, which he took last autumn, at Seaton Snook, at the mouth of the river Tees, some

our or five miles from here. It is rather small, expanding only $2\frac{1}{2}$ inches. The border is slightly tinged with buff, more so than in most of the British specimens I have seen.—JOHN E. ROBSON, West Hartlepool.

VANESSA C-ALBUM IN TURKEY.—I am pleased to have Mr. Mathew's addition to our knowledge of the distribution of this species. My authority for the statement that it did not occur in Greece and Turkey was the appendix to Kirby's European Butterflies. Mr. Mathew states that the Turkish specimens were taken in July and August, and were larger and paler than British examples. Judging by the date these would appear to have been the first brood, can Mr. Mathew say if he compared them with summer or autumn specimens of British *C-album*.—JOHN E. ROBSON, West Hartlepool.

ABUNDANCE OF *P. CARDUI* IN 1879.—As a note on the abundance of this butterfly in 1879, I may state that on August 25th I caught one rather damaged in the Horse Fair here, as it came flying from the town, and settled on some mud. Again on September 2nd, when at Sutton Park, I saw one among the bogs, but was not able to secure it, and a few hours after I saw one taken by an entomologist in another part of the park. On September 25th, about 9-30 a.m., I caught another as it settled on some mud in Dudley Street, just outside the station, it was in fair condition. A friend of mine on August 2nd took two in Sutton Park. Last year I neither saw nor heard of one being taken here.—GEO. F. WHEELDON, Birmingham.

BEGINNER'S NOTES FROM BIRMINGHAM.—I commenced collecting last year, soon after I saw your paper. *A. cardamines* was the first butterfly I remember to have taken special notice of. Whilst I was at school, I believe it was the Queen's birthday, I know we had a whole holiday, which most of us spent in rambling about the country. I managed to spend the day with a fellow who went in for collecting Butterflies, &c. He

didn't take his net, however, on this occasion, as we were bent on securing birds' eggs. The greater part of the way was along a dusty road, but at a certain point we turned into the fields, it was here we saw a specimen of *Cardamines*, off went our coats, and after having seen it go over a hedge, it returned, and my friend managed to fling his coat over it, after which it shortly gave up the ghost. I recollect the day well, besides getting a number of eggs, we had the good luck to come across a viper, which we despatched with our sticks; this became my property, as my friend had killed one a few days before in almost the same spot.—W. E. JONES, 125, Rann Street, Ladywood, Birmingham.



LARVA OF SYBILLA.—In looking at your plate of Butterflies in the January number of the *Young Naturalist* I think you have made a mistake in the figures of the pupa and larva of *L. Sybilla*, I bred several some years ago, and mine were quite different from your figures. I have sent you a rough sketch of the pupa in two different positions. As to the larva, mine had the 3rd and 4th segments (counting the head as one) with two large branched spines on each; 5th segment with two smaller branched spines; 6th, two spines like 3rd and 4th; 7th, 8th, 9th, and 10th, two small spines on each; 11th and 12th, like 3rd and 4th, but a little smaller. There were also some other small spines upon the under parts and sides. The head was very rough, and covered with small spines.—FREDK. BOND, Staines.

[We are glad of this correction; we had suspected the pupa from which we took the figure to be deformed, as it never produced a butterfly.—EDS.]

LOCAL LISTS.

The Geometrina of Plymouth and vicinity.

(Continued from p. 116.)

By G. C. BIGNELL, M.E.S.

E. rectangulata.—Common. June. Stoke, Laira, Plymbridge.

E. debiliata.—Rare, and local. June. Plymbridge. Larva in spun-up leaves of *Vaccinium myrtillus*, after the style of many *Tortrices*.

Lobophora viretata.—Local and rare. May and June. Larvæ in June on flowers of *Viburnum opulus* (Guelder rose). August and September. Larvæ in September on flowers of *Hedera Helix* (Ivy). Cann Wood, near Plymbridge, Chelsea Meadow, and Hoe.

L. lobulata.—Common and local. March and April. Cann Quarry and Wood.

Thera variata.—Common. July and September. Cann Wood.

Ypsipetes impluviata.—Common. May. On the road between Plympton and Plymbridge.

Y. elutata.—Abundant. June and July. Bickleigh, Plymbridge.

THE FOUR SEASONS:

A Story from the Book of Nature.

By LUCY FERN.

— — —
Chap. X.

A U T U M N.

Our happy party have been sight-seeing, and enjoying themselves at a variety of places, and we cannot follow in detail all their doings. In the beginning of August we find them at Wicken Fen collecting the beautiful pea-green larva of *P. Machaon* in its native haunts, a sight, alas! likely soon to be seen no more in England, through the encroachment of fen drainage, and the eagerness of avaricious collectors. On a fine

night six or eight lamps could be seen in different parts of the fen, put upon poles like lamp posts, for this is the way the moths are attracted there. Then the party moved up the east coast to Skegness and Cleethorps, where they found a local moth, *N. Elymi*, and obtained some quantities by beating the overhanging clumps of grass on the tops of the sandhills. But bye-and-by their three months had expired, which brought their tour to a close, and the 21st of September found them arrived at their new home, which by their orders had been got in readiness during their absence. It was a neat little cottage in a wooded valley. The front of the house had creepers trained against it, and a garden which was still sweet with some gay flowers stretched out before the door. At the end was a rough piece of hill side, just the sort of place for a naturalist, where nature had been her own gardener, and where grew a little bit of everything, beyond that begun the wood.

"What shall we call our new home?" says JOHN.

"I have been thinking of that," answered his wife, "and I propose we call it 'Autumn.'"

"Agreed, I like that name very well. And now let us go into the waste at the end here we shall have a better view."

The two went into the waste ground, and from there had a splendid view of the valley. The signs of decay had tinted the trees with various shades of orange, red and green, and the landscape was one beautiful picture.

In the evening a mixture of treacle and rum was procured, and JOHN took it into the woods, and painted the tree trunks with it. After dark the lantern was got ready, and him and his fair partner set out to visit the trees. Going through the waste a moth caught their eye, and following the direction in which it flew they came to a little bar covered with wild sage in full flower. There they found moths in quantities, sucking the nectar from the little flowers of sage and ling, both of which grew in profusion.

Next over the style, and into the wood, where they begin to look at their "sugared" trees, and where many beautiful insects rewarded their labour.

"Hallo!" says JOHN. "what is this? Well, I thought it was a piece of rotten stick."

"Ah no! it is a moth. It is *Exoleta*, box it at once."

The "sugared" trees were visited one after the other, and moths were numerous. Bye-and-by a sharp shower came on, after which the insects really swarmed, and nearly a score of different species were obtained, including the beautiful black and green *M. aprilina*.

"This is good," said JOHN, as they were returning home, "I am quite satisfied that we shall have plenty of sport near home, and we will try and make good use of it. Many collectors rush off to distant collecting grounds when they do not know half the products of their own immediate neighbourhood."

(To be continued.)

NOTES ON COMMON DIPTERA.

By S. L. MOSLEY.

II. GENUS BOMBYLIUS.

I describe some members of this genus, not because they are common, at least I have not found them so, but because of their interesting appearance, so different from the generality of Diptera that a case illustrative of that order would be incomplete without one of the species. They have a very general resemblance to a bee, and from this reason are called Humble-bee Flies.

In most Diptera the mouth part, or proboscis, points downward, at right angles to the body, but in this genus it sticks straight out in front, and is very long. The general form may be seen by the accompanying

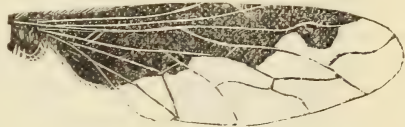
figure. The legs are rather long; the body and thorax covered with yellowish hair, the same as a bee. The antennæ are six jointed, the first two being covered with long hairs; the next joint is large, and the three at the tip very small. I believe there are four species, the two described below are the most common, flying in woods, &c., in April and May, and I think there is little doubt that any person who is fortunate enough to meet with a specimen of either of them will be able, at once, to identify it.



BOMBYLIUS MEDIUS.

Nat. size.

B. medius.—This species seems wrongly named; it is larger than *major*. The wings are shaded with dark at the base, and along two thirds of the costa, there is also about ten dark spots on each wing, chiefly at the junction of the wing bones.



WING OF *B. MAJOR*.

Four times natural size.

B. major.—This, as I have already stated, is smaller than *medius*. The above figure shows the arrangement of the wing bones of the genus, and will also serve to distinguish the species of the genus from the last. The dark portion of the wing is well defined, and not shaded as in *medius*, besides there are none of the spots characteristic of that species.

The other two species I have never seen, they are smaller in size, and the wings are clear. They are much rarer than those described.

MONTHLY NOTES.

By J. P. SOUTTER.

BOTANY.—At this early season very much depends upon the character of the weather as to what plants may be looked for. The almost unparalleled severity of the past month has effectually checked all out-door vegetation. Yet, since the welcome thaw came, there are not wanting indications of the renewed activity of Spring life. The green buds of the sycamore are beginning to swell, and the large resinous coated ones of the Horse Chestnut glisten in the bright blinks of sunshine, as if they were varnished, and waiting for the warm spring rains to wash them before the leaves can burst their coverings. In meadows and copses in various places, and in every garden, one of the earliest forerunners of Spring, the pure, chaste, and favorite Snow-drop (*Galanthus nivalis*), may be certainly looked for as soon as the snow has melted, and the frozen earth has thawed. It is usually found accompanied by its more gaudy companion the brilliant-hued Crocus. In gardens and shrubberies the bright buttercup-like flowers of the Winter Aconite (*Eranthis hyemalis*) may be observed, it is easily recognised by its solitary flower crowning the stem, with a fringelike frill of leaves. Towards the end of the month the flowers of the elm may be seen covering the leafless branches; on sunny days they are very attractive to bees, who visit them for sake of the pollen. The catkins of the Hazel and Alder trees are now becoming conspicuous. In these trees the staminate and pistillate flowers are on separate parts of the branch, and the flowers appear before the leaves, so that there may be no interruption to the dissemination of the pollen. The staminate catkins of the hazel often attain a length of three or four inches, and hang from the otherwise bare boughs like slender tassels quivering with every breath of wind, which scatters the clouds of powdery pollen to

alight upon the rosy pink feathery stigmas, so that the fruitful nuts of autumn may be produced. We hope our young readers may be induced to examine the flowers of hazel, they will find them very interesting.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

Genus VI. *Apatura*.

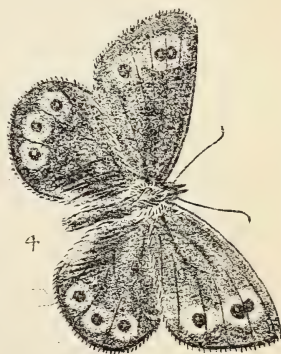
"*APATURA*, F., *Apatúra*, a surname of Venus, which she obtained from a trick that she played on some giants. Strabo. xi. 757."
—A.L.

Mr. Newman proposes to read *Apodura*, "signifying that the caterpillar has no feet at the tail or caudal extremity," but it is questionable if his suggestion will be accepted.

This is a genus of about 40 species, most of which are remarkable for the splendid blue or purple gloss on the wings of the male.

When the *SATYRIDÆ* and *NYMPHALIDÆ* were divided into distinct families, authors were scarcely agreed as to the place of this genus. The perfect insects possess undoubted affinity with the *NYMPHALIDÆ*; while the larvæ, which are smooth, stoutest in the middle, and divided into two points at the tail, resemble those of the *SATYRIDÆ*, rather than the cylindrical spiny larvæ lately described. Now that these divisions are considered to be but sub-families, the place of the genus comes naturally between the two. Those who are guided by the larva will class it with the *SATYRIDÆ*; those who think its characteristics in the preparatory stages, should not over-balance the affinities of the perfect insect will leave it where it is placed here.

The greatest number of the species are South American, but some are found in Asia, and in the Malay Archipelago. Only



<i>Apatura Iris</i>	1
<i>Arge Galathea</i>	2
<i>Erebia Epiphron</i>	3
" <i>Medea</i>	4



two occur in Europe, and but one in Britain.

29, IRIS, *Linn.* Pl. 13, fig. 1.

The Purple Emperor.

"IRIS, L., *Iris*, the messenger of Juno;
"mille trahens varios adverso Sole colores."
Virg. Æn. iv. 700."—A.L.

Imago.—Pl. 13, fig. 1. Blackish brown, with a white band commencing at the middle of the forewing, and crossing the hindwing to the inner margin. There is also a curved row of white spots from the costa of the forewing to the anal angle, and three smaller ones near the tip. Both wings have a few paler mottlings, especially at the hind margin, where they form a narrow irregular band. There is an eyed spot at the anal angle of the hind wing. The male is beautifully "shot" with purplish blue; the female is larger and browner, and without the blue shade.

Larva.—In shape very like the common black slug (*Arion ater*), but not so large. Pale green in colour, and warty, with a yellow spiracular line, and oblique yellow lines on the sides. The anal segment is prolonged into two points, instead of the usual claspers, and two horn-like processes (not retractile) spring from the crown of the head.

Pupa.—Suspended by the tail; much swollen in the middle, and divided into two points at the head. Bright green in color, with the wing cases rather darker, and the oblique lines already named as occurring on the larva, being still discernible.

Food Plants.—Poplar and Sallow. Mr. Owen Wilson adds, Oak; a tree for which the imago shows great preference.

Times of Appearance.—This beautiful butterfly is to be found on the wing in July, and the eggs are laid the same month. They hatch in about ten days, and the larvæ feed slowly until they retire for the winter. They do not conceal themselves as the last species does, but remain exposed. In May or June, they are full fed, and remain about a month in pupa.

Habitat.—*Iris* is said only to be found in oak woods. Why this should be so, when the larva feeds on Poplar and Sallow, has not been explained. It is fond of disporting about the tops of the loftiest trees, and though we read about capturing it with a net at the end of a forty feet pole, we confess to a considerable amount of doubt as to the possibility of such an implement being successfully handled. A pole of this length, light enough to be handled by one man, would bend so much as to be perfectly unmanageable. Various means have been tried, with more or less success, to induce the monarch to descend from his lofty throne. A sod, or something similar, flung into the air, has sometimes brought him down, whether from curiosity, or indignation at the intrusion. *Iris* has also been attracted by unsavoury smells. Carrion, dung, or stinking puddles have often proved successful baits. It has been taken at sugar; and the female, when depositing her eggs. Mr. Harwood also records an instance of one being taken at a lamp post in the evening. I have seen no notice of it visiting even the most attractive flowers. But with all these modes of capture, it is generally a desideratum in our collections. Its range is limited to the more southerly counties, coming up on the east coast, as far as Lincolnshire. It is found in Central Europe, in France, Italy, and Southern Russia, but does not seem to extend further.

Variation.—This species, like the last, varies by having the white band more or less suffused and hidden by black scales. When the white band is altogether wanting the variety is called *fole*, Schiff. A figure of this form is given in Newman, from a specimen in the wonderful collection of Mr. Fredk. Bond, but the figure does not show the beautiful blue of the spots. It is one of those occasional forms that, in our opinion, scarcely deserve a distinguishing name.

Parasites.—We have heard of none being reared from this larva as yet.

THE YOUNG NATURALIST.

E. G. MEEK

NATURALIST,

56, BROMPTON ROAD, LONDON, S.W.

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AT HOME.—The following gentlemen will be "At Home," during the date named, and will be glad to assist Beginners.

BELTON (Lancashire).—J. W. Baldwin, Toppings, Turtons, every Sunday Evening after 6 o'clock.

BRADFORD.—J. W. Carter, 23, Valley Street, Valley Road, every Thursday, from 6 p.m.

HARTLEPOOL.—WEST.—John E. Robson, Bellerby Terrace, Saturday, March 5 and 19, from 3 to 6 p.m.

HUDDERSFIELD.—S. L. Mosley, Woodside Road, every Saturday afternoon.

LIVERPOOL.—S. C. Gregson, Rose Bank, Edge Lane, every Sunday to end of March.

At Homes will close for the season after the end of March

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 71.

MARCH 5TH, 1881.

VOL. 2.

HOW TO BEGIN

COLLECTING COLEOPTERA.

AT this season of the year Coleoptera must be sought for in such places as they select for their winter retreat, and a rich harvest may be reaped by the energetic collector. It will very often happen that he stumbles upon the hybernaculum of a rare species, and finds quite a number of them together, that at another period it would be impossible to find except singly. Many species hide for the winter under the loose bark of trees, others hide under stones, among moss, &c., &c. Water Beetles very generally bury in the mud at the bottom of the pond, but a lively specimen of *Dytiscus Marginalis* was brought us a year ago, that had been turned up by the plough, in the middle of a field. As spring advances, and they waken up from their winter's sleep, the more ordinary methods of collecting can be resorted to. Herbage should be swept; trees and bushes beaten; and other similar means adopted, and kept up regularly. The same places that were found

productive during winter, will still be found with examination, though they will probably not produce such large numbers when beetles are moving about, as when they are hybernating. For some species traps may be set with great success. A hole in the ground, filled up with bones; a wide mouthed bottle sunk to the neck and filled with the same bait, will be found very attractive. These should be examined every morning. A dead dog, cat, or smaller animal will also attract many species. The burying beetles, as well as other species, will be found on turning them over. Refuse of almost all kinds should be regularly examined. Where a field has been flooded, and the floating debris is collected at the margin, the coleopterist will generally do well by a careful examination of this *rejectamenta*. The loose droppings at the side of a hay stack; tufts of decaying grass; a manure heap, especially in a garden where house refuse is deposited, are all productive. By the seaside, an accidental depression in the sand, a foot print, or similar hollow, will often be filled with beetles of various sorts. They cannot

crawl up the loose shifting sand, and never seem to have the idea of resorting to their wings to escape, and they may be seen in such places, a tumbling crawling mass of imbecility, apparently without sense enough to use the special means of escape nature has given them. Traps of this sort may be made with great success, and very little experience will teach the collector whereabouts they can be formed with best results. A dead fish, or bird, in similar places will generally produce as good results as inland. Heaps of sea-weed should always be turned over. Water Beetles, of course, must be sought for in ponds and streams. These must be captured with the net already described. When you see a water beetle, its capture is easy, but by passing your net among the growing water plants; along the sides; or over stones at the bottom, especially when moss-grown, many unseen species will be obtained. Other beetles frequent the wet ground at the edges of streams, swamps, &c., and must be searched for in their respective habitats. Mr. Mosley has been speaking with some degree of feeling of the destruction of rare birds by the game keepers of our county, but when the coleopterist comes upon one of their barn doors hung with Rough-legged Buzzards, or other scarce birds of prey, he feels that there is no evil without something to counter-balance it, and as he uses his beating stick on the suspended bird, and picks up the beetles that fall from it, he is thankful he is *only a coleopterist*.

From what has been said it will be seen that Beetles are almost everywhere and the collector who uses his eyes can scarcely walk about but he will find them. One of the commonest sights of autumn is to see a "staph" hurrying across the footpath. Pick it up, and it will turn up its tail as if to sting you and will perhaps seize your finger in its jaws, for the "Devil's coach-horses" can be savage when in despair. The "best locality" for beetles is probably as already said about Lepidoptera that nearest your own home. Some species, of course, are confined to ground of certain character. Water beetles are not found on the sea sand; moorland species are not to be had in woods nor those from a salt marsh far away from their actual home; but there are always so many to be found at the place that is most convenient, that the diligent collector will surely do well wherever he is. We do not know how many species of beetles are said to be native of this country, but certainly several thousands. The beginner will do best who, after collecting promiscuously until he has obtained a good knowledge of the principal groups of the order, confines his efforts to one special group, works at it diligently and endeavours to master it. When he has done this he can take up another. By this means he will both obtain a better knowledge of the order, and a better collection than by continuing all his time to collect indiscriminately.

In the foregoing article we have no

even given an outline of the various places at which beetles may be had, and the various means for taking them. We have said nothing about breeding them, for it is little resorted to, as "bred" coleoptera are generally small, and poorly colored, compared with captured specimens. Little is known of the early stages of very many species, and "life histories" are greatly needed. We would refer our readers to our last volume, page 134, for a model "Life History" of a Beetle from the pen of our esteemed correspondent, Mr. C. H. H. Walker, of Liverpool. We should be pleased to have others.

SPECIAL NOTICE.

At the request of several monthly subscribers, who remind us that the books, &c., advertised on the cover the first week in each month, will be no use to them at the end of the month, we have decided to make the proposed alteration on the last week in each month, instead of the first: so that weekly and monthly subscribers will be alike benefitted. The plate due to-day will, therefore, appear along with an additional one on March 26th.

TO CORRESPONDENTS.

Dr. Ellis writes: "I wish your readers would send more notices of captures; I believe they are very useful; and as Mr. Gregson says, 'it is the readers who make a periodical.'"

H. P., Liverpool.—There are so many kinds of Beetles that it is impossible to name yours from the descriptions you give. They may not be beetles at all.

EXCHANGES.

Wanted for figuring in "Birds and Eggs," young birds in the downy state. I can give rare British birds, eggs, or insects in exchange.—S. L. MOSLEY, Beaumont Park, Huddersfield.

I shall be glad to correspond and exchange specimens with a coleopterist who desires specimens of maritime species. Among other species I can promise a good supply of *Ap. inguinatus*, *A. proltromus*, *A. scybalaris*, *Calathus mollis*, &c., &c. My desiderata are (at present) species of genus *Aphodius*.—(Dr.) J. W. ELLIS, 138, Crown Street, Liverpool.

I have duplicates of the following lepidoptera in fair condition:—*I. urtica*, *Euphrosyne*, *Alexis*, *Phileas*, *Semele*, *humuli*, *filipendulae*, *caja*, *dispar*, *potatoria*, *zonaria*, *progemmaria*, *pemutata*, *lincola*, *nictitans*, *folvodon*, *testacea*, *brassicae*, *fasciuncula*, *valligera*, *oleracea*, *xanthographa*, *gamma*, *hastiana*, *nigromaculana*, and dozens of other species. Send list of desiderata, box, and return postage. If anyone has Hymenoptera to spare, I would be very glad to exchange for a few.—C. H. H. WALKER, 180, Falkner Street, Liverpool.

BRITISH BIRDS; THEIR NESTS AND EGGS.

By S. L. MOSLEY.

Genus V, *Pernis*, Cuv

PERNIS. — *Pernis* (L).—a Bird of Prey; Buzzard.

This genus may be distinguished from the last by the absence of the bare or bristly space around the eye, the front of the head being covered with small thick-set scale-like feathers; the leg is feathered a little below the knee. Only one species occurs in Britain as a summer visitant, occasionally remaining to breed.

6, HONEY BUZZARD.

Pernis apivorus, Linn.

Bi wrak, (Sweden).

La bondrée, } (France).
Buse bondrée, }

Wespen-busard, (Germany).

Bod-y-mel (Anct. Britain).

APIVORUS.—From *Apis* (L.), a bee; *voro* (L.) I devour.

Size.—Length of male nearly 2 ft.; expanse of wings 4 ft. Female from 2 to 3 inches longer each way.

Plumage.—This bird varies much in plumage, the under parts of some being nearly white, while others are a brownish color, more or less barred.

THE ADULT MALE has the front of the head clothed with small closely set ash grey feathers; crown and nape yellowish, or whitish, each feather having a brown centre. Back and wings brown; throat, breast, and under parts yellowish white, each feather being more or less streaked longitudinally on the throat, and transversally on the breast with brown bars; tail with three or four brown bars; bill brown color; cere, eyes, and feet yellow. Some have the upper part of the head blue, forming a cap, and is then called the Capped Buzzard.

THE FEMALE may be distinguished by being larger, and generally not having the ashy grey in front of the head. The figure is from a specimen in my father's possession, killed at Storthes Hall, near Huddersfield.

WHEN IMMATURE both sexes have the front of the head buff, and the eyes not so clear a yellow as in the adults.

THE YOUNG have the top of the head forming a cap of a dark cream color; the rest of the body white. Mr. Bond has the nestling young in his collection.

VARIETIES of this species sometimes occur of an entire brown. A figure (pl. 6, fig. 2) is given from Hancock's "Birds of Northumberland and Durham;" and Mr. Bond has another similar specimen. Others are very pale, especially on the under parts. I have copied a figure (pl. 6, fig. 3) from "The

Naturalist," edited by Beverly R. Morris, Vol. II, p. 168. It was in the collection of the late Mr. Allis, of York; and was killed near Bridlington. A similar one, but with more white about the head is figured by Mr. Hancock in the work referred to above.

The Note has been described as a plaintive whistle, resembling that of the Golden Plover.

Flight.—On the wing this bird glides softly and swiftly through the air, generally flying low.

Migration.—Hancock says that this bird arrives on our coast in May, and departs in August, September, and October, the old birds leaving first.

Food.—Honey, and the larvæ of bees and wasps is the natural food of this species. It robs the nests of these insects with impunity, tearing the comb in pieces, and eating the honey and grubs. It will also devour other insects, eggs of small birds, and reptiles. One which was killed in Ireland had its face smeared with cow's dung, and in its stomach was found the remains of coleoptera, and other insects, which, in all probability, it had been extracting from the dung. Others have been observed flying over sheets of water, and have been seen to take dragon flies in their claws, and convey them to their mouth. Insects seem to be the proper food of this species, though, when driven by hunger, small animals such as rats, mice, and moles are attacked. Young birds have also been taken from the stomach upon dissection; the one figured had in it the remains of young thrushes.

IN CONFINEMENT it may be treated as other birds of prey. One in Mr. Hancock's possession ate strawberry jam sweetened, with apparently as much relish as if it had been its natural food, honey.

Habitat.—The Honey Buzzard has been frequently met with of late years in England. In the New Forest, and other wooded districts in the south, it is by no means so rare a bird, as generally supposed, and specimens

are occasionally obtained in all parts of the country. Two have been obtained of recent years in the neighbourhood of Huddersfield.

ABROAD it is found in various parts of Europe, more or less commonly in all wooded districts. In Holland it is rare, but in some parts of Sweden it is common. It also occurs in various parts of Asia, and in Africa.

Nest.—A few instances of the nesting of this species in Britain are on record. A pair is mentioned by Gilbert White as having built in a tall beech in a wood in the parish of Selborne, and others are mentioned by Hewitson. Young birds, which must have been reared in this country, have been killed in Cumberland, Northumberland, and other places. In Wermland, in Sweden, where it breeds commonly, the "old Bushman" states that it goes to nest the latest of the whole tribe; he never found one before June, and some have been taken as late as the middle of August. It does not build in the deep forests, but selects some one of the smaller plantations, where fir and beech are mixed together, always, however, selecting a fir wherein to place the nest. He noted a peculiarity in the nest of this species which he did not observe in that of any other bird, viz., that there was always some green birch branches with the leaves on interwoven with the dry sticks which composed the bulk of the nest. The inside is lined with some soft substance, such as wool or dry leaves.

Eggs.—The number of eggs varies from one to three. The nest mentioned by Gilbert White had only one egg, and that hard set. The egg of this species is perhaps the most beautiful of all the family. The ground color is creamy, spotted and blotched with different shades of sienna and madder brown. Sometimes the blotches are arranged at each end, and in a zone round the thick part. In general appearance the egg of this species comes nearest to that of the Peregrine, but the color is deeper and brighter, and the egg rounder.

VARIETIES sometimes occur with all the

ground color obscured by the spots and blotches, they then being of a dark brown, with lighter shades of blood red and sienna.

ADDITIONS TO THE ENTOMOLOGY OF HASTINGS.

By W. BENNETT and S. HUME.

The enclosed is a list of the species of insects *new to the Hastings district*, which we have taken during the two past seasons—1879-80. We hope you will be able to insert it in the *Young Naturalist* as an instance that "work wins." I ought to mention that the Natural History of Hastings and its neighbourhood had not been by any means neglected, and the Lepidoptera had been especially well worked.

LEPIDOPTERA.

- Abraxas ulmata
- Eupithecia albipunctata
- Lobophora vinetata
- Nonagria fulva
- Cosmia affinis
- Xylina semibrunnea
- Hypenides costaestrigalis
- Rhodophaea marmorella
- Peronea comparana
- „ cristana
- „ aspersana
- Spilonota suffusana
- Sericosis lacunana v. herbana
- Ephippiphora signatana ?
- „ populana
- Grapholitha nisana v. ciuerana
- Olindia ulmana
- Semasia rufilana
- Dicrorampha alpinana
- „ plumbana ?
- Catoptria citrana
- Eupæcilia atricapitana
- Argyrolepis enicana
- Phygadeuon
- Hypolepis vitella
- Depressaria rotundella
- „ Douglasiella

Gelechia fugitivella
 Chelaria conscriptella
 Ornix Torquilella
 Chauliodus illigerella
 Laverna decorella
 Elachista Bedellella
 Opostega crepusculella
 Pterophorus zophodactylus

DIPTERA.

Spilographa zoe
 Acidia Heraclei
 „ sepadis
 Actina vallata
 Dolichopus aeneas
 Mydaea vespertina
 Spilogaster duplicata
 Homalomyia lugubrius
 Anthomyia radicans
 Scatophaga littorea
 Helomyza humilis
 Lapromyza loughipennis
 Psila villasulae
 Chlorops didyma
 Hydillia griseola
 Swalia ornata
 „ maculata
 Psychoda shlaboensides
 „ sexpunctata

HEMIPTERA, &c.

Chrysopa flava
 Hemerobius nervosus
 Limnophilus centralis

COLEOPTERA.

Anchomenus junceus
 Amara lunicollis
 Cetonia aurata
 Opilis mollis
 Stenus impressipennis
 Carcinops minima
 Hopatrum sabulosum
 Colandra oryzoe
 Mycetaea hirta
 Rhinosimus ruficollis
 Rhamphus flavicornis
 Chrysomela staphylea

Prasocuris aucta
 Cryptophagus distinguendus
 Adimonia sanguinea
 Psylliodes napi
 Apteropeda globosa

HYMENOPTERA.

Ichneumon albicinctus
 „ latrator
 „ saturatorius
 „ lencomelas

Limneria nana ?

„ cursitans
 „ difformis
 „ fenestralis
 „ obscurella
 „ erucator
 „ lugubrina ?
 „ ovata
 „ mutabilis

Pimpla detrita ?

„ turionella
 „ nucum. var.

Bassus nigratarsus.

„ exsultans
 „ insignis, male ?
 „ strigator

Mesostenus obnoxius

Lissonota segmentator

„ sulphurifera

Platylabus dimidiatus

Exetastes osculatorius

Euryproctus notatus ?

Heminachus fasciatus

Megastylus erythrostomus

Stilpnus deplanatus

„ gogates

Mesochorus pictilis

Phygadeuon obscuripes

Exyston cinctulus

Chasmodon apterus

Exochus prosopius

Casinarina tenuiventris

Campoplex cultrator

Atractodes gravidus

Proctotrypes calcer

„ ater

Callimona regius

NOTES ON MILITÆA ARTEMIS.

By Mrs. BATTERSBY.

In or about the month of April (for much depends upon early or late seasons) the little black larva of *Militæa Artemis* begin to leave their winter covering of white silky-looking web, they are then seen a short distance from their discarded home, sunning themselves upon blades of withered grass, or tufts of moss, after a short time they scatter, and begin to seek their food plant, which is invariably *Scabiosa succisa* (the Devil's bit Scabious), although other plants are mentioned in entomological books, such as plantain, common scabious, woodbine, &c. A careful study of several years has convinced me that they invariably reject any other food, in fact they will sooner starve in the absence of their favourite scabious, which is usually found in marshy meadows, where the female *Artemis* lays her eggs, and the web is usually discovered on a "Tussock" of grass raised a little above the more spongy soil. I have tried various experiments with the young larvæ, such as removing a colony to a more convenient spot well stocked with scabious roots, or endeavouring to keep a web in the house during winter, but they invariably failed. The best time for obtaining larvæ is when they begin to scatter, and I should not recommend more than two, or at most three dozen to be kept in one cage, for they do not seem to thrive so well in large companies. They are rather difficult to rear, for they are most impatient of disturbance, in fact some soft substance, such as bog moss, must be placed in the cage, for however gently the covering is removed, all the larvæ fall down, and as this frequently happens after they have begun to "hang up," such larva turn into chrysalides upon the moss, and it is the only chance of their not emerging cripples. In order to avoid frequent disturbance, rooted plants of scabious, which will keep fresh till

they are all devoured, will be found very useful. Even then, unless each bunch of plants is fastened securely with moss into the jam pot, the larvæ will slip through, and get drowned, and though they will not thrive without some degrees of moisture in the moss, if it is too wet they become mildewed, and do not live to spin up at all.

I once tried an experiment with a large tin box lined with a layer of bog moss, with numberless withered stems of grasses, &c., placed upright here and there through it, a large quantity of scabious plants, were fastened securely in a bowl of water, and a covering of half muslin and half crape placed over the box. I found a very few changes of food sufficient, and though larvæ apparently got on well, choosing the crape for hanging their chrysalides upon in preference to the muslin, but very few imagos rewarded my care, in fact a large proportion generally die in the chrysalis state; at first looking quite hopeful, but gradually shrivelling into half their proper size; the proportion of crippled insects is also large. The chrysalis is remarkably pretty, speckled with black and yellow, and a reared *Artemis* butterfly is a lovely object. It is a good plan to have the lately emerged imago in the sun for a time, to harden its wings, for instance upon a blind cord in a sunny window, otherwise they do not set well, but if left too long they will either probably be found upon the carpet, or indulging pussy with a game of "hide and seek," very much to her amusement, and their disadvantage. In their natural habitats the chrysalides are found attached to the under leaf of the food plant.

The female *Artemis* is much larger than the male, and sometimes very brilliantly colored. Of late years these butterflies have almost entirely disappeared from our neighbourhood, indeed between being "drowned out" by several successive floods, and "ploughed out" by cultivation of their habitats, our beautiful *Artemis* seems nearly extinct.

E. G. MEEK

NATURALIST,

56, BROMPTON ROAD, LONDON, S.W.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 72.

MARCH 12TH, 1881.

VOL. 2.

HOW TO BEGIN COLEOPTERA:—

KILLING AND SETTING.

WHEN beetles have been killed in the collecting bottles, as described on page 122, they may be kept several days among laurel leaves, or in a box with damp blotting paper. It does not do, however, to keep them too long in such a receptacle, as they soon rot, and as decay takes place sooner in a soft substance than in a hard one, you will find when a beetle has been kept too long damp that the legs, &c., are apt to come off as they are moved with the setting needle. This is in consequence of the substance of the joints decaying. If it is not convenient, therefore, to set your captures shortly after they have been killed, they will keep better quite dry, and can be relaxed at any time. Specimens that have been brought home alive can be killed by any of the usual agents, or by being dropped into boiling water. Specimens that need relaxing may also be dropped into boiling water. Before they are set, they should be taken out, and placed

for a few minutes on a piece of blotting paper to absorb the superfluous moisture. A correspondent lately asked us if it is the general practice to "card" the larger specimens; we believe large beetles are usually pinned, smaller ones mounted on card, but we have seen specimens up to a moderate sized *Carabus* carded. You must use your own discretion where you draw the line between a large and a small one. The pin should be inserted through the centre of the upper portion of the right wing case. It should be as near perpendicular as possible, and pushed well through. The beetle should then be pinned on a piece of cork, and the limbs carefully drawn into position. If it is well relaxed they will remain where placed, if any of them are rather refractory they must be pinned where they are wanted, and remain so till dry; but you must not on any account attempt to force the limbs of a perfectly dry beetle to assume the desired position. They will certainly snap off, and spoil your specimen.

For mounting beetles on card, you require a gum made of three parts of gum tragacanth and one or two of

gum arabic. Select the pieces of gum that are clearest and without color, and then cover them with water. Gum tragacanth does not dissolve like gum arabic, but absorbs the water, and swells considerably. Add more water as needed, and when the liquid is of about the consistency of treacle it is fit for use. A grain of Corrosive Sublimate is said to be necessary to make this gum keep, but we would advise our young coleopterists to make a smaller quantity at once, and dispense with this dangerous poison. The card on which your beetles are mounted should be the whitest and finest you can procure, but not glazed. It is better to use card rather thicker for the larger species than for the small ones. Cut your card into strips, and put on a drop or "dab" of gum. On this place your beetle, then with a fine setting needle draw its limbs and antennæ into position. If you find these do not remain quite in their place, go on with the next specimen, and return to the first as the gum gets a little drier. The "dab" of gum should be large enough to fasten down all the limbs of the insect on to the card. When your strip of card is full, put it away to dry. Should the moisture on the upper surface have a tendency to curl up the edges of the cardboard, this can be overcome by damping the underside before you begin, but if it is pinned down at each end, you will not be much troubled with it turning up at the edges. When the gum is perfectly dry, the

specimens must be neatly cut separate with a pair of sharp scissors. In doing this, you must take care to have the opposite edges of the card perfectly parallel, and that the insect is set square upon it. If they are set across the card ever so slightly, they have a crooked, lopsided look, that does not add to the appearance of your collection. The card should be cut on three sides close to the limbs of the beetle, but should be left long enough behind for there to be room for the pin without it interfering with your view of the specimen. The pin should be as near the bottom of the card as possible, and exactly in the middle. Attention to these small matters will add greatly to the appearance of your collection, and must not be thought too trivial to be worth noticing. Whatever is worth doing at all, is worth doing well. Put the pin well through the card, so that it is at least quarter of an inch above the bottom of your drawer, and you will keep clear of mites, another small matter well worth attention, have all your cards pinned in with pins of the same size. We use No. 8. In mounting your specimens avoid as far possible touching the upper side with the gum. Should you accidentally do so, remove it with a camel's hair pencil and clear water. There are many other matters that might be named, but enough has been said for beginners, and other things will be learned by experience.

NOTES, CAPTURES, &C.

EARLY CAPTURES.—*Hybernia Rupicaprariva* has been out here in large numbers, and *Progenmmaria* also in fair quantities. On the 18th Feb. when out collecting with Mr. G. Mathew, between 9 and 10, I boxed a good number of both. The *Progenmmaria* were very variable, hardly 2 specimens being alike, and 2 or 3 being exceptionally dark. While beating the hedge for females, of which we secured 7 *Rupicaprariva*, we discovered a specimen of *Sarrothripa Revayana* in the beating tray, evidently a hybernated one.—MISS HINCHLIFF, Worlington House, Instow, North Devon.

ENTOMOLOGICAL PINS.—At page 98, *Young Naturalist*, amongst many very good and useful suggestions, we are told to look to our stock of pins, and that a new black pin is being supplied, &c. Permit me to say, I got a sample of these pins from London two seasons ago, and used them freely at first upon species likely to verdigrease, and find in practice they have two bad faults: first, insects verdigrease quite as readily upon them as common pins, and much more so those upon gilt pins; and in the next place they are such poor pointed pins that they can hardly be got to enter cork, and when once forced in can hardly be removed, the perfectly parallel sides of the wire holding them as tight as a German nail; they are, in fact, very like the best fault of the Welsh pony, with its only two faults:—bad to catch, and when caught good for nothing. I send herewith specimen set within two years upon these pins, and think I never saw worse verdigreased insects in the time. I therefore say avoid black pins, and use "Edleston's" Gilt Pins, they are the best in the world, and the cheapest I know of. Whilst on the subject of pins, let me say I pin my faith, or rather my insects, on No. 8 Gilt for butterflies and large moths, and No. 16 for the *Geometrina* and *Tortricina*, and use No. 20 for the *Tineina*. With the exception of for the sphinges, no other sizes need be used by British entom-

ologists, who set low on the pin. Of course old hands will do as they think proper, and use whatever sort of pins they prefer, but I am writing for young naturalists. Note, there is a so-called gold pin being sold, which is worse than either the common pin or the black pin, it verdigreases all over, as well as near the body of the insect. I send samples for inspection, and for your opinion; in my opinion, it is the height of folly to use any of them. They may be known from Edleston's pins by the smaller heads, bad points, and duller appearance; where they come from I don't know.—C. S. GREGSON.

[The insects sent were delayed in the post, and when they arrived they were in so thoroughly smashed condition, that it was impossible to give an opinion.—EDS.]

FOREIGN BODIES IN EGGS.—On looking over an old *Naturalist* published in 1852 I find on p. 9, vol. 2, a statement that a human hair was found passing entirely through the shell and albumen of an egg. Also another instance of a barley corn being found in the albumen of another. These instances seem to be confirmatory of the instance given at p. 67, vol. 1, *Young Naturalist* of a lost sixpence being found in the inside of an egg at breakfast.—S. L. MOSLEY.

V. URTICID IN FEBRUARY.—I recorded the capture of a specimen of this insect on 17th February. A second was brought me a week later, 24th February, which was taken on the wing not very far from the workshop, on the window of which the first was found. It was very lively when caught, the day being very fine and mild, but with the return of frost and snow both appear to have become torpid again.—JOHN E. ROBSON, West Hartlepool.

TO CORRESPONDENTS.

A. D., Gt. Marlow.—We do not know the price of the book you name; send us fourpence in stamps, and we will advertise for a second-hand copy, someone may have one they do not care to keep. The fault must be with your bookseller, or his London agent.

LOCAL LISTS.

The Geometrina of Plymouth and vicinity.

(Continued from p. 116.)

By G. C. BIGNELL, M.E.S.

Melanthia rubiginata.—Rare. July. Cann Wood, Bickleigh, Radford.

M. ocellata.—Common. May and June. Plymstock, Bickleigh, Plymbridge.

Melanippe tristata.—Rare in the vicinity of Plymouth. June. Crabtree, common on Blackdown (between Kingsbridge Road and Kingsbridge).

M. unangulata.—Not common. June and July. Bickleigh.

M. rivata.—Common. July and August. Bickleigh, Hartley, and almost every wood and damp lane.

M. biriviata.—Common. May and July. Lanes and hedgerows.

SALE OR EXCHANGE.

So many of our correspondents intimate from time to time that they have to dispose of, or wish to purchase, books that are out of print, cabinets which they have displaced for larger ones, and other similar articles, that we have thought it would be a convenience if such announcements could be made public. We trust the following regulations will be what are required for the purpose, and that our readers will find the column an advantage. This will in no way interfere with our ordinary exchanges of specimens.

REGULATIONS.

1. The announcements will be confined to Books on Natural History or Scientific Subjects, Cabinets, Store Boxes, and other collectors' requirements, either wanted, or to be disposed of.
2. An uniform charge of 4d. for 12 words will be made, and 1d. for every 3 words additional.
3. Where the address is published, the words of the address will be counted, and

charged for.

4. Where the advertiser does not desire his address to be published, a number will be appended, and all replies to such announcements must be sent with one stamp for postage to the conductors of this magazine, by whom they will be forwarded.
5. When an article is agreed to be purchased for cash, the money may be sent in blank Postal Orders, to the conductor of the magazine, who will hold it until the article has been received, and found to be as represented, when it will be sent to the seller. One extra stamp must be sent for postage.
6. No trade announcement will be made under this head.

The above regulations are published now that our readers may understand what we propose. This will not be repeated except on the last week of each month.

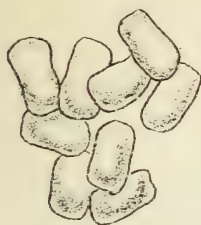
THE PRIMROSE.

(*Primula vulgaris*.)

By J. P. SOUTTER, Bishop Auckland.

"How sweet thy modest unaffected pride
Glow on the sunny bank and woods warm side;
And where thy fairy flowers in groups are found
The schoolboy roams enchantedly along;
Plucking the fairest with a rude delight,
While the meek shepherd stops his simple song
To gaze a moment on the pleasing sight;
O'erjoyed to see the flowers that truly bring
The welcome news of sweet returning spring.

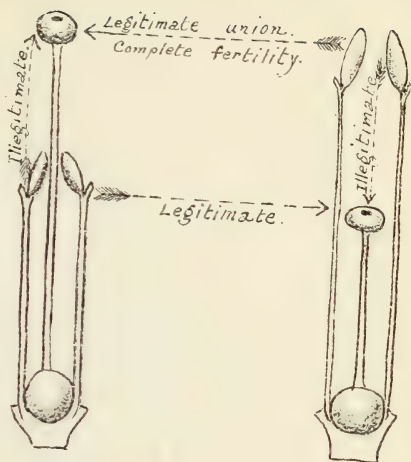
How many tender recollections rush into the mind at sight of the first primrose of spring, "Nature's first pale darling of the year." How many sweet associations of childhood's joyous hours cluster round the bosky dell, or sunny hedge bank, where we plucked the meek-eyed flowrets—half hidden, yet peeping shyly forth from the sheltering nest of their pale green leaves, and scenting the still keen air of spring with their faint, yet delicious, perfume. So full of poetry is



Pollen-grains of long-styled form.

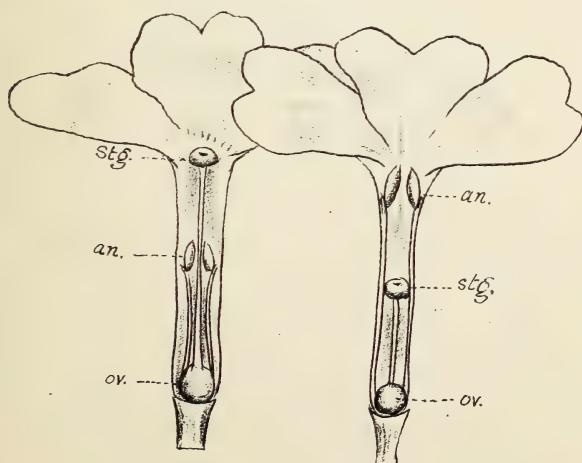


Pollen-grains of short-styled form.



Long-styled form.

Short-styled form.



THE PRIMROSE (from Lubbock).

15 JUN 29
VAT.HIS.



the "rathe primrose" that the typical soul in which all poesy is dead is pilloried by Wordsworth in the well-known lines.—

"A primrose by the river's brim,
Or by the cottage door,
A yellow primrose was to him,
And it was nothing more."

Familiar as the flowers of the primrose are, there are yet peculiarities in its structure which are doubtless overlooked by multitudes who gather them. More than two years ago a botanist had observed and noted that of the flowers of primrose about one-half had the anthers seated at the top of the tube of the corolla, almost closing its throat, whilst the style and stigma only reached about half way up the tube; whereas in the other moiety of plants the style reached to the top of the tube, the stigma like the head of a pin showing at the aperture, whilst the anthers are inserted half-way down. So that in the one form the stamens are on a level with the stigmas of the other (see plate).

Growers of auricula and polyanthus had noticed the same peculiarity, and gave the name of "thrum-eyed" and "pin-eyed" to the different forms, and by this name the distinction is noted by children in the north of England, who string necklaces of the flowers of primroses and cowslips by pushing the tubes of the flowers into each other, and as the "pin-eyed" form has the tube wider for half its depth they are most in request for this operation.

Like many more so-called trivial phenomena of nature which are unthinkingly seen without being observed, till some master-mind furnishes the key to unlock the secret. So it was reserved for Mr. Darwin to present a solution of the use of this diversity of structure. By a series of exhaustive experiments, which we have not space to reproduce, he has shown that in order to ensure full fertility the pollen of one primrose has to be carried to the stigma of another flower on a different plant; and not only so, but the pollen of the short styled form must be conveyed to the stigma of the long styled form

in order that the greatest number of seeds producing the most robust plants may be procured. As will be seen from the diagram, there are four different ways in which fertilisation may be accomplished. Two of these may be called illegitimate when the pollen of a flower may be applied to its own stigma, which produces a small quantity of seed, or none at all. And the other, or legitimate union, when the pollen of one flower is carried to the stigma of another at the same height. This is accomplished by the aid of insects, such as large humble bees and moths. It will readily be understood that a bee in search of food, thrusting its proboscis into the tube of a primrose or cowslip, will dust its proboscis with pollen at the top or half way down, which will be carried to the next flower it visits, when some of it is certain to adhere to the stigma which stands at the same level. In the case of primroses this process is accomplished by moths only; for close observation has never yet detected the visits of bees to primroses, although they frequent cowslips, and are mainly instrumental in fertilising them. So dependant are cowslips on the visits of bees that if their visits are effectually excluded by the plants being covered with nets, no seeds will be produced at all. The pollen grains from the short styled are conspicuously larger, and different in shape, from those of the long-styled form, being also much more potent in their effect. We have here the strange spectacle of a hermaphrodite flower with both organs developed, but gradually assuming a unisexual character as to function. Both forms are nearly equally common in nature, but they never merge into each other, so that there is no mistaking to which class any individual plant may be referred, and if a plant is fertilised with its own pollen it will produce plants all of one form, viz., its own.

The term dimorphic is applied to plants such as the primrose and cowslip, in which the styles are of two different lengths, and such forms are not uncommon. A much

rarer form in which there are three distinct degrees of length in the styles in different plants is called trimorphic, and is found in the purple loose strifes (*Lythrum salicaria*), a tall, handsome, showy plant, growing on the margins of lakes and rivers, and flowering in August. Primroses and cowslips are so well known to every child, as to require no description. The primrose comes into flower several weeks earlier than the cowslip. In southern England it may be found blooming in February and March. As we go northward it opens more tardily. There is usually about a week's difference in blooming for each degree of latitude. In the north of Scotland it is looked for in May, and is known as "May spinks." It loves to grow on rather damp shady banks, and will thrive where the sun never shines. It attains its greatest luxuriance where the soil has an admixture of peat, and is most abundant in woods. Whereas the cowslip prefers open ground, such as old meadows and pastures, and seems to be most prolific on a limestone formation, where the fields are sometimes yellow with its countless umbels of drooping dark-eyed flowers. It is much less frequent in Scotland than in England.

(To be continued.)

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

Sub-Family II, Satyrinæ.

Imago.—Generally dull colored insects, most of them being various shades of brown, but the members of one genus are black and white. The hind margin is occasionally of irregular outline, but not so much so as in the first sub-family. One or both wings have nearly always ocellated or eyed spots, one at the tip of the fore wing, and one at the anal angle of the hind wing, being most frequent.

In some genera there is a paler colored band or patch containing them. Sometimes they are bi-pupilled. These spots are most numerous and most distinct on the underside of the wings. The hind wing always has a groove for the abdomen. They are not strong flyers, and many of the species are found in woods and shady places.

Larva.—Generally attenuated toward each end, but always tapering to the tail which terminates in two points. They feed almost exclusively on grasses, and conceal themselves during the day; hence they are little seen, and those even of the most abundant species are known to few entomologists. They are not spiny, but clothed with a fine pubescence.

Pupa.—Stumpy, and scarcely angulated. Sometimes suspended by the tail, in other cases, loose on the surface of the earth, or among the grass stems. A few retire beneath the surface, and form an earthy cocoon.

About sixty genera are recognised, of which six or seven are found in Europe. The number of genera depending on the importance attached to various characteristics. We follow the arrangement of Mr. Doubleday, a best known in this country, though we certainly think the hairy eyes of *Ægeria* and *Megara* is a characteristic sufficiently distinct to warrant them being placed in a separate genus as many writers have done.

They are not very easy to tabulate, except the genus *ARGE*, they are all very similar in general character. The few British species will be easily made out from the descriptions, aided by the figures.

Genus I, *ARGE*.

"*ARGE*, Esp., *Ar'gè*, argos, white."—A.L.

This genus includes those species that have the ground colour of the wings white with black markings, which vary greatly in extent. This makes the determination of closely allied species extremely difficult. Hence Doubleday and Westwood give 4 species in the genus, and Kirby's latest catalogue only gives 8, some of D. and W's

ecies being now considered only varieties. early all of them are European, the warmer ores of the Mediteranean being the home the genus. Two or three are found in ia, but only one (*Meridionalis*) which was rmerly considered a variety of *Lachesis*, is nfinied to that Continent. Only one species curs in Britain.

GALATHEA, Linn., Pl. 13, fig. 2.

The marbled white. The half mourner.

"GALATEA, L., *Galatea* (Galathea) a nymph loved by Acis."—A.L.

Imago.—Plate 13, fig. 2. Cream color rbled with black. A row of eyed spots on e underside of the hind wing near the hind rgin.

Larva.—Green, a darker dorsal stripe; snacular line whitish; anal points tipped h pink. The central portion is browner, al some specimens are yellowish brown ead of green.

Pupa.—Short and stumpy, pale drab, h slightly darker markings. It is not pended by the tail, but the change takes ce on the surface of the ground among the ss stems.

Food Plant.—Timothy grass (*Phleum nse*), and other grasses.

Times of Appearance.—This butterfly makes its appearance in July, and the eggs are deposited about the end of the nth. They are not attached to the grass, b allowed to fall in among it. These hch the stems in about twenty days, and the young larvæ feed slowly for a short time, al then hibernate about the roots of the ss. They begin to feed again at the ler end of April, or early in May, ording to the season, and are full fed in Jie. They change to a chrysalis on the surface of the ground.

Habitat.—This butterfly is confined in this country entirely to England, and does n occur at all in the more northerly enties, Yorkshire being the furthest north in which it is found. In the Midland and

more southern counties it is common enough where it occurs, but this is always very restricted. Often in one field only, or even in one portion of it. It seems to prefer roughish ground, and a broken pasture is a frequent habitat. On the Continent it is generally distributed, but does not occur in the Spanish peninsula nor in Scandinavia, or the north of Russia.

VARIATION.—*Galathea* varies much in the extent of the black markings. Mr. Farn has a specimen in his collection which is entirely black, the usual markings showing slightly as the insect is held in certain lights. Other specimens exist in various collections in which the dark color greatly predominates. Mr. Stevens has one with the usual dark markings of a *rufus brown*, and another in the same collection with the ground color very yellow, and the black markings very few. Mr. Briggs has one with the under wings suffused with black. Mr. J. P. Barrett has a specimen taken at Gravesend, in which the black markings are confined to the base of the wing, and a border around the outer margin, leaving the centre of the wings only traversed by the dark veins. We have heard of a specimen entirely white, but cannot at present say in whose collection it is. In this country dark forms are rare, but in the south-east of Europe are more frequent, and the variety is called *Turcica*, B. Another form from the same quarter is called *Procida*, Hbst., and which Dr. Staudinger describes as "*obscurior*." A third named variety is *Galene*, O., which wants the eyed spots. A curious form of the female is also named *Leucomelas*, Esp. It has the underside of the hind wings without black marks. Besides these varieties specimens are found in which the cream color of the ground of the wings is replaced by pure white. I have seen many such, but am not able to say whether it is a local form, or occurs occasionally with the type.

Parasites.—I do not know of any parasitic insects in this species.

E. G. MEEK

NATURALIST,

56, BROMPTON ROAD, LONDON, S.W.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 73.

MARCH 19TH, 1881.

VOL. 2.

MAMMALIA.

A RECENT number of the *Feuille des Jeunes Naturalistes* contains a most interesting article on the lesser Mammalia of France, which has called our attention to the fact, that the Mammalia found in our own country are very little studied. Why is this so? Is it that the larger species are too large for preservation in any but the museums of our chief towns, or that the smaller species are so retiring in their habits that they are seldom seen, and opportunity of studying their habits rarely obtained. Still we think there scarcely ought to be the amount of ignorance that generally prevails in reference to this portion of our native wild animals. Mammalia stand first in rank, yet how few professed naturalists have any idea how many species are wild in this country, or how many are truly native. Will the reader of this article, before he goes any further, count over the number of wild animals that he knows exist in this country, and how many of them he would know at sight. "Rats and Mice,"

"Yes, two;" Rabbits and Hares,"
"Yes, four;" Water Rats," "five;"
"Hedgehogs," "six;" "Field Mice,"
"Yes, but do you know the field mouse from the house mouse." "I think so, the field mouse is browner in color, and has a long nose." "Seven, go on." "Weasels and Polecats," "Yes, but do you know one from the other." "I doubt not. I have an idea the Polecat is the larger of the two, but if I only saw one I should have no idea which it was. I never saw either at large to my knowledge, but I know the Hedgehog." "Very well, eight." "The Squirrel," "nine." A long pause, and then confession that less is known on the subject than should be. The above is not imaginary, but a *bona fide* conversation with one who knew most of the birds of his neighbourhood at sight, is fairly well up in Entomology, and knows as many wild flowers as most of people who have not studied Botany; but who, living in a town, had seen but little of our native mammals in their chosen haunts, of course he knew the names and something of the history of a great many more species than he could name at sight. We happened to

know that he passed daily a field in which the Mole was very abundant, yet on this animal being named he could not undertake to say he had ever seen one alive, though he thought he would know it if he did. Nor let his ignorance be laughed at. Which of our readers know by sight a score of our native mammals, or could give even a brief account of the habits of half-a-dozen of them? How many species of Rats and Mice are native in the Island? Who can give an account from personal observation of the Harvest Mouse, or the Water Shrew? Who has seen the Black Rat in a wild state, and can explain its retreat before its brown cousin, sometimes called the Hanoverian Rat? We have heard the Black Rat called the "Old English" Rat, but we also have some remembrance of seeing it called the Norman Rat, as though it had come over at the Norman Conquest.

Some time ago we asked for replies to certain Entomological queries, but our unknown friend, "John Peel," beat all competitors from the field, and we had to abandon the idea for a time. We now offer a bound copy of Vol. I, of the *Young Naturalist* for the best life history of any British Mammal. The writers must give their authority for all statements they cannot vouch for from personal knowledge. Original observation, and particularly any new facts will have special consideration in the award. Papers to reach us by May 1st.

TO CORRESPONDENTS.

H. F. H., Devonport.—We will take a hint from your suggestion.

Early spring is a good time for visiting the Cheshire sandhills. A list of the lepidoptera found there was published in No. 26 of this magazine, which can be sent post free for 1½d.

P. T. D., Edgbaston.—Your insects are, a, b, f, *Basilinea*; c, d, j, *Augur*; e, *Cubicularis*; g, *Dilutata*; h, *Badiata*; i, *Repandata*; k, l, b, *Defoliaria*; l, *Tanthina*; m, *Rurea*; n, p, r, *Xanthographa*; o, *Testacea*; q, *Tiliaria*; s, *Lücipara*; t, *Immanata*; u, v, *Rivata*; w, *Lactearia*; x, *Flavago*; y, *Ferruginea*; z, *Instabilis*; a a, *Anceps*. Several of these species came in your last lot.

Several parties who have seen Mr. Mosley's "Varieties of British Lepidoptera," and "European Butterflies" have asked if they could not have the British Butterflies done in a similar style. We beg now to state that we are able to supply beautifully hand-painted plates (uniform in size with the *Young Naturalist*) of British Butterflies including figures of types, and all the varieties; also larvæ, pupæ, and food plants as far as known. These will be supplied in 2/6 parts, and our time will not permit us to supply more than a limited number.

Our next number being the monthly cover, parties having books, or other Natural History appliances, for sale or wants, had better communicate at once.

EXCHANGES.

Wanted to borrow for figuring the following species, or well executed drawings of the same:—*Par. Normandii*, *Colias Thisoa*, *Melitæa Iduna*, *M. Disfontainesii*, *M. Arduinna*, *M. Britomartis*, *M. Asteria*, *Arg. Selenis*, *A. Polaris*, *A. Frigga*, *A. Thore*, *A. Eugenia*, *A. Cyrene*, *A. Alexandra*, &c., &c. I will make a good return for the loan of specimens or figures.—S. L. MOSLEY, Beaumont Park, Huddersfield.

NOTES, CAPTURES, &C.

CAPTURES AT COVENTRY.—On the 20th of February I took 6 *Leucophearia*, 1 *Æscularia*, and 1 *Pilosaria*: all males.—H. THOMPSON, Coventry.

DUNLIN IN YORKSHIRE.—Mr. W. E. Clarke, East View, Hyde Park, Leeds, would be glad if any of the readers of the *Young Naturalist* could give him authentic instances of the Dunlin breeding in Yorkshire.

BOTANICAL DIARY.—Daisy (*Bellis Perennis*), in flower, Feb. 10th. Red Nettle (*Lamium purpureum*), in bud, Feb. 16th. Spurge Laurel (*Daphne Laureola*) in flower, Feb. 19. Cowdrop (*Galanthus Nivalis*), (wild), Feb. 19. Hazel (*Corylus avellana*), Male and Female Catkins, in flower, Feb. 19. Palm Willow (*Salix Caprea*), Catkins in flower, Feb. 22nd.—A. DAVIS, Junr., High St., Gt. Marlow, Bucks.

CAPTURES NEAR LIVERPOOL.—February 20, Latham Wood. A bitter cold day; wind S.E. *H. leucophearia* was fairly abundant; took about 30 specimens, including three of the dark ones (not, however, var. *nigricaria*), *H. defoliaria* and *P. pilosaria*, a male and female of each. Among the beetles I took were *Philonthus decorus*, *P. laminatus*, *Leistus viridicollis*, *Lathrobium elnyatum*, *Dromius quadrimaculatus*, and a (to me) new *Tachinus* (*locemella*)!—JOHN W. ELLIS, 138, Crown Street, Liverpool.

BUTTERFLIES AT GT. MARLOW, BUCKS, IN FEB.—Clouded Yellows (*Colas Edusa*) were scarce, though going out often, I think I only saw three specimens. Large Garden Whites were not very common, and I did not see a single specimen of the Marbled White. Wood Argus was very common, though, I dare say, I did not see a single Wall Butterfly. In the *Vanessa* Family, small Tortoiseshells (*Urtica*) were extremely common, but not a single large Tortoiseshell (*Polydorus*) did I meet with. I did not see a Firstbroke (*Thecla*) of any kind, nor have I even seen one here. As to the Blues (*Lycana*)

the Chalk Hill was not common, and the Silver Studded was only once caught. The common Blue and Brown Argus were extremely common in certain places. The Small Lopper was common almost everywhere.—A. DAVIS, High Street, Gt. Marlow, Bucks.

REVIEW.

REPORT ON INJURIOUS INSECTS.—London: Swan Sonnenschein and Allan. Price 1/-.

The Editor (Miss Ormerod) has again sent us this most useful annual production. Notes on over thirty different species of Injurious Insects are gathered from all parts of the country, some of the most exhaustive character. Many more, we think, might be included as injurious. For instance, our friend Mr. Gregson sent us recently the report of a trial in a County Court at Birkenhead, in which the plaintiff sought to recover damages for certain ravages committed by a small moth, not more than half an inch across the wings, on the ground that the stuffing was of inferior quality. This little insignificant moth occupied the attention of judge, counsel, and a special jury for over eleven hours during one day, and when the jury were refused compensation because they did not arrive at a verdict, no doubt they would consider that this moth ought to be classed among Injurious Insects. Miss Ormerod announces a "Manual of Remedies and Means of Prevention for the attack of Insects on Food Crops, Forest Trees, and Fruit."

COLEOPTERA OF LIVERPOOL.—Dr. Ellis has sent us his list of the *Geodophaga* of the Liverpool district, which is a reprint from the "Naturalist." This paper was originally read before the Lancashire and Cheshire Entomological Society, which has a means of getting up its transactions, which other societies might profit by its example. When a paper of sufficient interest is read it is sent for publication to the above magazine, and a

number of reprints are ordered, which are paid for out of the funds of the society, and the reprints are distributed among the members. The members, thereby, get the transactions in separate forms, and the public have access to them by purchasing the magazine in which the papers are printed. Dr. Ellis's list comprises 151 species, nearly half of those recognised as occurring in Britain. The exact locality where the species have been found is given in all cases, except those that occur everywhere. The initials of the captor are also given, and brief notes on some of the species. This is to be followed by lists of the other groups, and when completed will be the first entire catalogue of the "Coleoptera of Liverpool and neighbourhood."

LOCAL LISTS.

The Geometrina of Plymouth and vicinity.

(Continued from p. 148.)

By G. C. BIGNELL, M.E.S.

- M. montanata*.—Abundant. May, July, and August. Roads, lanes, and hedgerows.
M. galiata.—Very common. May, June, and September. Everywhere out of the town.
M. fluctuata.—Very common. April, May, and August. Every garden in or out of town.
Anticlea sinuata.—Rare. June. Egg Buckland, Plymbridge, near Bickleigh Bridge.
A. rubidata.—Common. June. Bickleigh, Plympton, Laira, Whitsands, Bolt Head, Wembury.
A. badiata.—Common. March and April. Bickleigh, Plympton, Laira.
A. derivata.—Rare. March, April, and May. Mutley, Laira, Cann Quarry (at Sallow bloom).
Coremia propugnata.—Local, and not common. May, June, and August. Near Cann Quarry, meadow near Plymbridge.

- C. ferrugaria*.—Abundant. May, June, and August. Hedges everywhere.
C. unidentaria.—Rare in Plymouth, at Exeter Common. May, June, and August. Bickleigh.
Campptogramma bilineata.—Very common. June and July. Hedges everywhere.
C. fluviata.—Not common. July, September, and October. Stoke, Tothill. In 1857 this insect was quite common at gas lamps in the suburbs.
Scotosia undulata.—Not common. June and July. Cann Wood, Horrabridge, Bickleigh Vale.
Cidaria psittacata.—Not rare. September to March. Cann Wood, Plymbridge.
C. miata.—Rare. September to May. One at a gas lamp. North Road, near Tavistock Road.
C. picata.—Not rare. June and July. Bickleigh.
C. corylata.—Not common. May and June. Bickleigh, Cann Wood.
C. russata.—Common. May, June, and August. Bickleigh, Cann Wood, Plymbridge.
C. immanata.—Not common. July, August, and September. Efford.
C. suffumata.—Common. April and May. Efford, Horrabridge, and Bickleigh.
C. silaceata.—Not common. May, June, and August. Horrabridge.
C. prunata.—Not common. June and July. Stoke, in fields towards Milehouse.
C. populata.—Not common. July. Cann Wood, Bickleigh.
C. fulvata.—Not common. June and July. Cemetery, Bickleigh, Plymbridge.
C. Pyraliata.—Not common. July. Bickleigh, Horrabridge.
Eubolia cervinata.—Common. September and October. Efford, Stoke, fields near Milehouse.
E. mensuaria.—Common. June, July, August. St. John's, Antony, Bickleigh, Plymbridge.
E. palumbaria.—Common. June. Bickleigh, Buxton Brake, Homerdown.

NATURAL HISTORY DIARY.

By J. W. CARTER.

February.

2nd.—Observed several specimens of the beautiful little Water Shrew, burrowing in the snow, with which their shining black backs contrasted beautifully.

3rd.—Honeysuckle (*Lonicera periclymenum*) in leaf.

5th.—*Boreata*, females still out.—(J. F.)

12th.—Robin (*Erythra rubecula*) in full song.

13th.—*H. defoliaria* still out, and in fine condition, which is the latest date on which this species has been observed here, the earliest being (one specimen) the latter part of September. *H. leucophearia* out, Shipley Glen, Wilsden.—(E. P. P. B.) *P. pilosaria* is very common, I think they differ both in point of size and color greatly from those I took last year. Some are very fine, and others exceedingly diminutive. One I have taken is of a unicolorous olive color, and a few others very dark—not black—dusky would be the more appropriate name for them.—(E. P. P. B.) All I have seen here, both of this species and *Leucophearia* are considerably smaller than usual, some indeed are not more than half the average size.

18th.—*H. rupicapra* out, Apperly Bridge.—(J. F.) Far less common in this district than any other species of the genus *Hybernia*. Missel Thrush (*Turdus viscivorus*) heard singing.—(S. L. M.)

19th.—Great Snipe (*Scolopax major*) shot near Wilsden.—(E. P. P. B.)

24th.—Snowdrop (*Galanthus nivalis*) in flower in gardens.—(H. T. S.)

The prevalence of north and north-east winds, and the continual downfall of snow and rain, has considerably retarded the progress of vegetation, and the appearance of

insects in any numbers during the month, consequently the records are very few. The flowers of the hazel, &c., which we naturally expect to see in February have been looked for in vain.

DIFFICULTIES FOR BEGINNERS.

By JOHN E. ROBSON.

No. 5.—AGROTIS TRITICI AND AQUILINA.

The difficulty of separating these species is so great that experienced entomologists, who have not had good opportunities of becoming acquainted with them, often fall into error concerning them, and I have seen them wrongly named in some of our best cabinets. Mr. Doubleday, in a letter to the writer, pointed out with his usual acumen the cause of the difficulty, "The *tritici* group is a very difficult one, as the species are *closely allied*, and *vary extremely*." Both *cursoria* and *obelisca* might have been included amongst the species that are sometimes confounded, for I have seen undoubted *tritici* marked as varieties of *cursoria*, while *obelisca* is very like a dark form of it. I will however confine my remarks to the two named, and may refer to the others at another time, but if the separation of these can be made easier, a careful observer will put the others right himself. Mr. Newman describes the two species in almost the same words, and where the words are varied the meaning remains the same. The only difference I can see in his descriptions is that he speaks of a "crescent-shaped discoidal spot," as being on the hind wing of *Aquilina*, and does not name it in *tritici*. Both species, however, have this lunule on the hind wing, but it is not always equally distinct. Mr. Stainton, who generally discriminates carefully between the most closely allied species, would appear to have drawn his description of *tritici* from specimens from the south of England

only, for it does not apply to the golden brown *tritici* of the northern counties, which is the form most easily confounded with *Aquilina*. The want of resemblance of these northern specimens to the published accounts of *tritici*, led the writer at one time to send them out as *aquilina*, and out of hundreds of specimens so sent away, to experienced as well as inexperienced collectors, not one was ever objected to. Mr. Harwood, of Colchester, was the first to call attention to the error, and after a correspondence with Mr. Doubleday on the subject, and the careful examination of a great number of both species, I think I have learned to discriminate between them. Whether I can, in words, point out these differences to others is another matter. I can but try, and if I fail, I do so in good company.

In the first place *aquilina* is the larger insect of the two. The smallest specimen I have is one line larger than the largest of my *tritici*, but on the average it is fully two lines wider in expanse. This of itself should be a sufficient guide for their separation. But this extra length of wing, gives extra width at the hind margin, and makes *aquilina* look a larger insect than it really is. Both insects are similarly marked, but *aquilina* is very much more uniform than *tritici*, which varies exceedingly, and is found both lighter and darker in hue than its near ally. To separate them I would advise first that the larger specimens be picked out. All that expand over an inch and a quarter will be *aquilina*, all that expand under one inch and two lines will be *tritici*. Next separate all those that are most strongly marked, whether it be the sub-costal streak that is distinct, the stigmata that are very palely outlined, the space between them that is extra dark, or other distinct marks. All these specimens will be *tritici*, as will those that have a grey tinge. You will now have only a few obscurely marked specimens left, most of which are probably *tritici*, unless you live where one occurs, and not the other. From those you

have already decided you will be able by comparison to make out most, if not all, and the more you examine them, the more certain you will be as to your accuracy, and you will find that the larger number of specimens you have, the easier will they be to separate.

Dr. Staudinger considers *aquilina* to be a mere variety of *tritici*, which he distinguishes as "*major, dilutior*." Mr. Doubleday says, "I think it is a good species." Mr. Buckler has reared both from the larvæ, which he finds are different. Boisduval examined Mr. Doubleday's specimens, and said they were correctly named, and those who have good series of the two insects, will have little doubt of their distinctness.

THE PRIMROSE.

(*Primula vulgaris*.)

Continued from p. 150.

By J. P. SOUTTER, Bishop Auckland.

Whenever primroses and cowslips are found growing together hybrids occur. These are produced by the pollen of one species being carried by insects to the stigma of the other, the progeny partaking less or more of the character of both parents. These are oxlips, and are the origin of the common polyanthus of the gardens. Some have maintained that primroses, oxlips, and cowslips are all varieties of one species, but although they have doubtless all descended from one original type, the primrose and cowslips are now as well defined as any botanical species can be. The best proof of that, is the process of hybridisation; although it is comparatively easy to raise oxlips by intercrossing primroses and cowslips, as it is to raise mules between the ass and horse, yet the oxlip has the characteristic of a hybrid in that it is almost entirely sterile when fertilised by its own pollen, and is only partially fertile when crossed by pollen from one of its parents. Although very generally

distributed throughout Britain the primrose is not found in certain districts, notably one place in Suffolk, where there is a tradition that primroses were once abundant till the place was devastated by the plague, when the primroses took the infection, sickened, and died, and will never grow in that locality since. Although primroses have an extensive range in Europe, they are entirely absent from the centre of the Continent, apparently preferring the maritime countries, whilst the cowslip is generally distributed throughout the north temperate region. Although such an universal favourite for its grateful fragrance and modest demeanour, the primrose has never been utilised for any useful purpose. I have heard of a receipt for primrose pudding, but I have never seen it tried. All animals abstain from eating it except pigs, whose grovelling selfishness prevents them looking up to lick the hand which feeds them, and who will grub up and devour the harmless primrose.

Cowslip wine is sometimes made, but its reputed virtues have fallen into decadence, and it also has Culpepper's famous healing salve made of primroses. So popular a flower was sure to have a cluster of folk-lore legends surrounding it, so we find in certain districts of England it considered unlucky to bring a fewer number than 13 primrose flowers in the first gathering of the season, otherwise the hens of the goodwife into whose house they were brought would hatch more chickens than primroses. In the northern counties primroses are used as a love charm to foretell the constancy of a lover, or the success of a suit. By cutting off the tops of the stamens, and laying aside the flower for a day, if the stamens shoot up to their former height, it is an augury of good, but if not only sorrow and disappointment will follow. In some localities it is considered unlucky to bring primroses into the house at all, for being one of the flowers used to strew on graves and deck coffins with, they have acquired an uncanny

character. In Germany the primrose is called the "key flower," possibly because by its early blooming in Spring it is the key which unlocks the door of Flora's paradise. In that country there is also a widely prevalent superstition that it is always associated with hidden treasure, preternatural wealth, the key to unlock the door of which is furnished by a primrose flower. Perhaps a similar legend lingers around the common English name of "cups." Some people believe that there is a peculiar affinity between nightingales and cowslips, that the birds manifest so marked a preference for these flowers that they will only frequent localities where cowslips abound. There is not likely to be more than a seeming coincidence for this belief, as the same thing has been alleged with regard to hops, and instances have been given where the planting of hops as a crop has been followed by the advent of nightingales. The common name primrose is a corruption of the old name "prymme rolles," or "primerole" as written by Chaucer, which is from the French "primevera," meaning the first spring flower. This name is more strictly applicable to the daisy, which is far more abundant and universal than the primrose, besides being an earlier flower, and the name *Primula veris* was formerly applied to the daisy, but has gradually become restricted to the primroses. The botanical name *Primula* (*primus* first) refers to the early flowering of the various species. The name cowslip (*Primula veris*) is an odd instance of corruption of a popular appellation. It has nothing whatever to do with a cow's mouth, but should be "hose-flap," and refers to the enormous hose with turned over flaps which were so popular in the middle ages, and which the tubular flowers of the cowslip somewhat distantly resemble, not uncommon cultivated variety of the cowslip in which the calyx is transformed into a corolla, the blossoms having the appearance of a double flower, one within the other is called "hose-in-hose."

THE YOUNG NATURALIST.

E. G. MEEK

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The Young Naturalist:

AN ILLUSTRATED

Penny Weekly Magazine of Natural History.

CONDUCTED BY

J. E. ROBSON AND S. L. MOSLEY.

Part XVI. April, contains:—How to begin collecting Coleoptera, 137, 147. Honey Buzzard, 139. Additions to the Entomology of Hastings; by W. Bennett and S. Hume, 141. Notes on *Melitaea Artemis*, by Mrs. Battersby, 143. Geometrina of Plymouth, by G. C. Biggell, 148, 156. The Primrose (with plate), by J. P. Soutter, 145, 155. British Butterflies (with plate), 150. Mammalia, 153. Natural History Diary, by J. W. Carter, 157. Difficulties for Beginners, 157. Review, 155. Notes, Captures, Correspondence, Exchanges, &c., &c.

NOTES, CAPTURES, &C.

VANESSA C-ALBUM IN TURKEY.—In reply to Mr. Robson's query respecting this species, I beg to state that those taken by me in Turkey, in July and August, 1878, appear to have been the spring brood, and vary very slightly from British examples. I was not aware that there was such a difference between the spring and autumn broods, until I compared these Turkish butterflies with some examples kindly sent to me by Mrs. Hutchinson, to enable me to give a satisfactory answer to Mr. Robson's question.—GERVASE F. MATHEW, Instow, N. Devon, 19th March, 1881.

ENTOMOLOGICAL PINS.—In reply to some remarks on Entomological Pins, at page 147 of the *Young Naturalist*, I beg to state that I have used black pins for the last three years, and have not had a single specimen spring, or show the slightest sign of verdigris; whereas some species of Crambites set on gilt and plain ones have been almost destroyed. These black pins have a much neater appearance in the cabinet than any others, and are now used by a number of entomologists in London and the provinces. I do not know if there is more than one maker of these pins, but those I use are obtained from Meek, of the Brompton Road.—B. A. BOWER, Iltham Road, Lee

REARING *O. POTATORIA*.—On page 153, Vol. I, you say in your account of rearing the larvæ of *Odonestis potatoria* that it is one of the easiest larvæ to rear, and that they should be fed on coarse grass, supplied fresh every evening. My experience *was* that they were anything but easy to rear, for three years I tried to rear them on coarse grass, and failed every time, without a single exception they would not eat the grass. I next tried them on the leaves of the common reed, and have bred hundreds of them since. If you give them the tops of the reeds with a portion of the tops so much the better, as they will spin their cocoons on the stems, and the leaves will not wither away as the grass does. I would strongly advise my young friends to use the reed in preference to the grass, if they wish to rear "Drinkers" with any degree of certainty.—F. KERRY, Harwich.

EXCHANGE.

DUPLICATES.—*Gonostigma*, *Alveolus*, *Leucophearia*, &c., ova of Dispar. DESIDERATA.—*Sibylla*, *Semele*, *Maura*, and ova of common moths; also common shells or fossils.—H. THOMPSON, Gosford Street, Coventry.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 75.

APRIL 2ND, 1881.

VOL. 2.

THE YOUNG NATURALIST EXCHANGE CLUB.

ALL the parcels in connection with this club have now been sent out, and as the period of last season at which the suggestion was made, was so late for many who would otherwise have joined it, we wish to make the necessary announcements for next season now. We will first say a word or two in reference to the insects that have passed through our hands. Considering all things, the number of specimens that reached us was almost more than we could have anticipated, and only one box contained such common species as to be of little use. Only one box also reached us with its contents much damaged, and this entirely from careless packing. Among the insects sent, Messrs. Carter and Barth, of Bradford, supplied a series of *Thia chi* that differ considerably both from the normal type of the species, and from the northern form of it now as *Olivacea* Stephens. The type of *Chi* is described by Stainton as being "whitish grey, the margins of the stigma and lines darker." Newman

says, "White or whitish grey, with numerous darker markings. The hind wings of the male are pure white, with a delicate marginal line, those of the female are clouded with smoke color, especially near the hind margin, and on the wing rays, the head, thorax, and body are pale grey, almost white." These Bradford specimens are much darker grey than any others we have seen, the head, thorax, and body are dark dingy grey, the hind wings of the male are nearly as dark as those of the female, but in some specimens the fringe is a very pure white. While they are thus darker in shade than the type, they are equally distinct from the variety *Olivacea* in hue, which is a sort of olive green. To compare them with other species we might say, the type of *Chi* somewhat resembles *H. serena*, in color, and the Bradford specimens resemble *H. dysodea*. We shall be glad to hear if this dingy form occurs elsewhere. We also received from two members specimens of the black form of *Betularia*, called *Doubledayaria*. It seems very curious that intermediate forms between the type and this

variety should be so rare. Mr Maling, of Newcastle, informed us last year, that having several specimens of both forms out at the same time he tried to pair them, but could not get them to couple according to color, the black ones always pairing with a grey mate, and never with a black one. This preference was singular, and if the same obtains in a state of nature we would naturally expect the intermediate form to be much commoner than it is.

We are pleased to say our members so far as they have acknowledged receipt, are well satisfied with their return parcels, but we have no reason to expect otherwise. There were only two whom we had any difficulty in selecting for. They sent the largest and best boxes, yet had the best collections, and we felt it would not be fair to give them all the best insects, but even these got a fair return for their parcels, and are well satisfied. But a difficulty like this will not occur again, when we have a larger number of members. If the promises made for the coming season are at all fulfilled, we will certainly consider our Club a success. Last season the suggestion and announcements were made too late (November). Most of our friends had already exchanged or given away their best duplicates, and no one knew at all what species would be useful. To utilise the means at our disposal to the best possible advantage, we will be obliged if those who propose to join the club for the coming season will, at

the earliest convenient date, send us a list of their desiderata marked in figures, with the number of each species they desire to receive. We will then as soon as possible forward to each member a marked list of the requirements of the Club. Each will then know what species will be useful, and we have no doubt the results will be satisfactory. Members will please note, however, in reference to comparatively abundant insects, that it will not do for a dozen or more to send in the entire number wanted. Yet there are many that are locally excessively abundant, but might only fall to the net of a single member. We suggest, therefore, whenever a collector finds himself able to supply the full number of species marked in the lists, that he write before doing so, and wait our reply, as we do not wish to have any specimens left on hand. This year we have a few remaining; these we purpose to offer through our exchange column as soon as we know the desiderata of our members. Some correspondents have expressed a desire to contribute Coleoptera, Birds, Eggs, and Shells. These are things always in demand, and if they will let us have as early as convenient a full list of their duplicates and desiderata we will endeavour to arrange to suit them. Our original idea in the establishment of an Exchange Club, as will be seen in our first number, was to bring about such a general system, that the members would be able to do better than they possibly could by the ordinary mode of

exchange. We quote the passage from the article referred to, "Smith collects Lepidoptera, but lives where a rare shell is obtainable; Williams collects shells, but lives in a good locality for birds and eggs; while Thompson wants eggs or birds, and can get good moths or butterflies." It is easy to see then that three can never meet each other in exchange, but through our club we hope they will ultimately do so.

In sending lists please enclose two stamps—one for the return list, the other for postage. There will be no further expense.

TO CORRESPONDENTS.

K. Harwich.—There is great need of what you ask, and we have long been collecting material for it. We might, at an early date, give an outline of the group, but it would be some time before it could be presented in so complete a form as you desire. Very many of the larvæ are yet unknown.

L. F., Kingston.—Too late for insertion. Shall appear in next list.

H. S., York.—There are two works published by the trustees of the British Museum which we think would answer your purpose; the price is about 6s. each. These are on bees; for Ichneumons, "*Pinecographia*" is the best, but is expensive.

EXCHANGE.

DUPLICATES.—*Gonostigma*, *Alveolus*, *Leucoicaria*, &c., ova of Dispar. DESIDERATA.—*Phylla*, *Semele*, *Maura*, and ova of common moths; also common shells or fossils.—H. HOMPSON, Gosford Street, Coventry.

this butterfly on Sunday, the 6th inst., as it was flying very weakly about in my garden at Lewisham. I may say that Sunday was a beautiful sunshiny day.—C. A. MARRIOTT, Lewisham.

ENTOMOLOGICAL NOTES.—The small tortoise shell (*Vanessa urticae*) was first seen on March 6th, and the Brimstone on the 11th. On the 14th I observed the Bloody-nosed, the Oil, and the Sun Beetles. I first saw one of the Common Humble Bees on the 15th, and the Red-tailed Humble Bee on the 19th March.—A. DAVIS, JUNR., High St., Gt. Marlow, Bucks.

CAPTURES AT BIRMINGHAM.—My first capture was on January 17th,—*H. rupicaprariva* on a lamp. On February 18th, two *P. pilosaria* and three *H. rupicaprariva*, on lamps. March 6th, two *P. pilosaria* at rest on palings, and one on a lamp at night, and one *H. progemmaria*, and five *A. Æscularia*. March 17th, four *P. pilosaria*; *H. progemmaria* was very common, there being hardly a lamp without four or five upon it. *A. Æscularia* was not quite so common; all males. I also saw on March 13th a flock of about a dozen Lapwings feeding in a ploughed field near Sutton Park.—GEO. F. WHELDON, Birmingham.

BOTANICAL DIARY. (Continued from No. 73, Page 155.)—Lesser Celandine (*Ranunculus Ficaria*) in flower, February 27th. Red Dead Nettle (*Lamium purpureum*), in flower Feb. 28. Chickweed (*Cerastium vulgatum*), in flower March 9th. Groundsel (*Senecio vulgaris*), in flower Mar. 9th. Dog's Mercury (*Mercurialis perennis*), in flower Mar. 11th. Primrose (*Primula vulgaris*), in flower Mar. 12th. Furze (*Ulex Europæus*), in flower Mar. 12th. Yew (*Taxus Baccata*), in flower Mar. 12th. Wild Honeysuckle (*Lonicera periclymenum*) in leaf Mar. 12th. Sweet Violet (*Viola odorata*) in flower Mar. 13. Elder (*Sambucus nigra*), in leaf March 14th. Elm (*Ulmus campestris*), in flower Mar. 15th. Dog Violet (*Viola canina*), in flower. Dandelion (*Taraxacum*

NOTES, CAPTURES, &C.

VANESSA, Io.—I took a fine specimen of

Dens-leonis), in flower Mar. 19th. Coltsfoot (*Tussilago farfara*), in flower Mar. 19th. Strawberry-leaved Potentil (*Potentilla Fragariastrum*) in flower Mar. 19th.—A. DAVIS, JUN., High Street, Great Marlow, Bucks.

CAPTURES IN EASTHAM WOOD, CHESHIRE.—19th March, 1881 Wind North West, strong and gusty. AFTERNOON.—*Tortricodes hyemana*. Flying in fair quantity. *Hybernia leucophaea*. Many males on the oak trees, very variable in color and markings. Only one female seen. *Hybernia progemmaria*. Six or seven males. *Anisopteryx æscularia*. Two males. *Phigalia pilosaria*. Four males and one female. NIGHT AT TREACLE. *Cerastis vaccinii*, *Scopelosoma satellitia*. In great quantity at the treacle, some of the patches having over thirty specimens sipping at them. *Taniocampa gothica*; abundant. *Taniocampa instabilis*; four specimens. *Taniocampa munda*; five specimens. *Phlogophora meticulosa*; one specimen. *Taniocampa stabilis*; abundant. Vegetation very backward in the wood. No flowers. Larva of *Odonestis potatoria* on grass in neighbourhood.—R. BROWN, Toxteth Park, Liverpool.

VANESSA C-ALBUM IN TURKEY.—In reply to Mr. Robson's query respecting this species, I beg to state that those taken by me in Turkey, in July and August, 1878, appear to have been the spring brood, and vary very slightly from British examples. I was not aware that there was such a difference between the spring and autumn broods, until I compared these Turkish butterflies with some examples kindly sent to me by Mrs. Hutchinson, to enable me to give a satisfactory answer to Mr. Robson's question.—GERVASE F. MATHEW, Instow, N. Devon, 19th March, 1881.

ENTOMOLOGICAL PINS.—In reply to some remarks on Entomological Pins, at page 147 of the *Young Naturalist*, I beg to state that I have used black pins for the last three years, and have not had a single specimen spring, or show the slightest sign of verdigris; whereas some species of Crambites set on

gilt and plain ones have been almost destroyed. These black pins have a much neater appearance in the cabinet than any others, and are now used by a number of entomologists in London and the provinces. I do not know there is more than one maker of these pins, but those I use are obtained from Meek, the Brompton Road.—B. A. BOWER, Eltham Road, Lee

REARING *O. potatoria*.—On page 15 Vol. I, you say in your account of rearing the larvæ of *Odonestis potatoria* that it is one of the easiest larvæ to rear, and that they should be fed on coarse grass, supplied fresh every evening. My experience was that they were anything but easy to rear, for three years I tried to rear them on coarse grass and failed every time, without a single exception they would not eat the grass. I next tried them on the leaves of the common reed and have bred hundreds of them since. If you give them the tops of the reeds with a portion of the tops so much the better, as they will spin their cocoons on the stems, and the leaves will not wither away as the grass does. I would strongly advise my young friends to use the reed in preference to the grass, if they wish to rear "Drinkers" with any degree of certainty.—F. KERRY, Harwich

ENTOMOLOGICAL PINS.—As the Entomological Pin question is again to the fore, I should like to say one or two words on the subject, not in favour of either gilt or black pins, because I do not believe that either of them possess the qualities assigned to them. It is astonishing to find so practical an Entomologist as Mr. A. B. Farn strongly recommending the use of black pins (*Entomologist*, vol. 12, p. 112), and Mr. Gregson, an equally practical Naturalist, advising your readers to avoid them by all means (*Y. N.*, vol. 2, p. 147). I have never used anything but plain white pins, and I have specimens of *G. flavago* and other internal feeders, which have been set for at least a dozen years, and which do not show the slightest sign of corrosion. In my opinion

the selection of pins should be guided by their neatness in the cabinet; for, use what kind you will, gilt, black, or white, if your insects are not *kept thoroughly dry*, the pins are certain to become corroded in a very short time.—J. W. CARTER, Bradford.

AN ENCOUNTER WITH ROOKS.—The other day I went to a rookery to try to get some eggs. After having gone up several trees to no purpose, I at last found a nest with some eggs in it, but the old bird was on, and flew away, making a great jabbering noise. I quickly put three eggs in my pocket, and was just coming down, when I heard an awful jabbering, and, looking up, I saw nearly the whole rookery coming at me, and I soon felt some pecks. I put up my arm to guard my face, and tried to descend, but it was no good; and so, luckily, having a small thick stick in my inside pocket, I pulled it out, and let fly right and left, and having hit some of them, the others did not want a dose, too, so they drew off, and down I came, and found, to my delight, that none of the eggs were broken; so I blew them, and came back as fast as I could, just in time for lessons.—C. F. T. HINCHLIFF, U.S. College, Westward Ho, North Devon.—March 23rd, 1881.

FIGHT BETWEEN A RAT AND A WEASEL.—Some workmen, returning from work the other night, were spectators of a fight between a large rat and a very small weasel. It was in a lane about a mile from the town; and during the fight two machines passed, when the weasel ran into the dyke-side, returning to resume the fight as soon as they were passed. At last, after fighting about 25 minutes, the rat was so much exhausted that it could not run away, and the weasel killed it, and dragged it off to its hole in the dyke, the spectators letting it go unmolested.—W. MANSON, Kirkcudbright.—21st March, 1881.

EARLY APPEARANCE OF *D. CORYLI*.—On the 21st of this month I had occasion to look into one of breeding cages that contained pupa, and to my astonishment I found one female

Demas coryli out. Is not this an uncommon early appearance of this moth, which generally comes out in June? My cages are all exposed out of doors.—Yours truly, T. W. KING, 3, Terrace, Camberwell.

ENTOMOLOGICAL PINS.—I can fully endorse all Mr. Gregson says about the black pins. I purchased some about two years ago, but soon discontinued using them on account of their blunt points, and I am very glad that I did so; for, in addition to their being liable to verdigris just as much as plain pins, I find that they have a nasty habit of *rusting* in the cork, thereby preventing the insect being easily removed, and leaving an ugly-looking hole in the paper. Pins of this description have been in use for a long time on the continent; for I have many European species set on pins which were evidently once black, but from which the japan or varnish has long since worn off, and this does not look elegant in one's cabinet. There are no pins to come up to Edlestone's gilt pins, and I shall use no others for the future.—GERVASE F. MATHEW, Instow, North Devon.

LOCAL LISTS.

The Geometrina of Plymouth and vicinity.

(Concluded from p. 156.)

By G. C. BIGNELL, M.E.S.

- E. bipunctaria*.—Common. July. Peuloe Point, Whitsand Bay, Bevisand, Crabtree.
Anaitis plagiata.—Common. May, June, August, and September. Bickleigh, Plymbridge, Plympton.
Chesias spatulata.—Local, and not common. September and October. Plymbridge,
Tanagra cherophyllata.—Rare near Plymouth, common at Bolt Head. June and July. Horrabridge, Cann Wood.

This list comprises all the Geometræ that I can ascertain to have been taken.

MONTHLY NOTE—BOTANY.

By J. P. SOUTTER, Bishop Auckland.

After the rapid change from snow and frost to the bright sunshine, it is gladdening to mark the sudden awakening of vegetable

life. Snowdrops which had been hidden under the snow were found in full bloom when it melted. One of the most characteristic flowers of March is the merry dancing daffadil (*Narcissus pseudo-narcissus*).

"Daffodils

That come before the swallow dare, and take
The winds of March with beauty."

The daffodil is remarkable for the peculiar appendage forming a coronna, or crown, to its gaudy colored perianth. In the sweet narcissus and jonquil, so extensively grown for their fragrance and delicate beauty, the coronna is usually of a very decidedly different color to the rest of the flower, standing out like a brilliant chrome or carmine cup in a pure snow-white salver. The same appendage may be seen in the pink and catchfly family, and in a modified form in the common cowslip. In lanes and hedgerows hidden amongst last year's leaves and herbage, may be found the sweet violet (*Viola odorata*), emblem of retiring modesty. Its pale blue or white flowers, drooping on their slender stalks, are so inconspicuous, that they would be difficult to detect, but so powerful is their fragrance that they may be discovered by their scent alone. Of all our British violets, many of which have showy conspicuous flowers, with beauty of form and gorgeous coloring, fascinating to the eye, as the common garden pansy, yet the sweet violet is the only one endowed with perfume. In waste places, railway embankments, and fallow fields, especially where the soil is clayey, the bright yellow flowers of coltsfoot (*Tussilago farfara*) shine like golden stars on the bosom of the bare brown earth. The flowers appear long before the leaves, and are borne singly on the top of scaly cottony stems, it is curious to observe how at first the unexpanded flower buds are bent and nodding. As the flowers open they become erect, and umbosom themselves to the sun's rays, closing again at night. After they are fertilised they again droop, the infant seeds being carefully shielded from the rain, by

the closely pressed scales of the involucre till they have attained maturity, when the flower stalks again become erect, the involucral scales fall back, and the ripe seeds are freely exposed to the winds to be lightly wafted on feathery wings like thistle down to distant habitats. A closely allied plant, the butter bur (*Petasites vulgaris*), the gigantic leaves of which, the largest of any British plant, are so conspicuous in summer, and familiar to every schoolboy as wild rhubarb, may now be found in flower by stream sides, and river banks,

As a contrast to this, one of the neatest and most diminutive of our common plants, the little spring whitlow grass (*Draba verna*) is now in bloom. It loves to grow on dry bare natural pastures, on the tops of old walls, or where the rocks break through the scanty soil. In some districts it is exceedingly abundant, whitening the ground with its innumerable flowers. In other places, as my own immediate neighbourhood, it is scarcely to be found at all. It grows with a rosette of leaves spreading on the ground, from which rises a leafless stalk, bearing numerous small pure white cross-shaped flowers. Luxuriant specimens, with a straggly spreading growth, often attain a considerable size, but I have frequently seen perfect shapely plants not an inch in height, and the whole specimen. root with its adherent ball of earth, leaves, stem, and flowers, stand comfortably on a threepenny piece, one of nature's miniature masterpieces.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

Genus II.—*Erebia*, Bois.

"*EREBIA*, Dal., *Ereb'ia*, *Erebus*, the region of darkness; from the dark colors of the genus."—A.L.

A genus of dark colored butterflies inhabiting mountainous districts, and including some sixty species, of which about half are European. Two only occur in Britain. Many of the species have a very close resemblance to each other, and some of them vary greatly, rendering their discrimination very difficult.

EPIPHRON, Kn. } Pl. 13, Fig. 3.
CASSIOPE, Fab. }

The Mountain Ringlet.

"CASSIOPE, F., *Cassiope*, the mother of Andromeda. Proper. I, 17. 3."—A.L.

Imago.—Pl. 13, fig. 3. Dark brown, with a fulvous band on all wings, on which are a row of small spots, sometimes with white centres.

Larva.—Very little known. The only description I have seen is by Mr Wailes, of Newcastle. He says, "Pale green, with numerous darker green longitudinal lines shading into the ground color, and with a well defined white line along each side in the region of the spiracles." Transactions of the Tyneside Naturalists Field Club. Vol III, p. 201. Note.

Food Plants.—"The larvæ fed upon *Poa annua*, and *Festuca ovina*, though I suspect in a state of nature, they live on the young leaves of *Nardus stricta*, or some of the smaller *Junci*, which constitute the principal herbage of the mountain sides where the insect is met with."—G. Wailes.

Times of Appearance.—The butterfly appears about the middle of June, and continues on the wing till the end of July. The larvæ are doubtless of the same habit as those of *Medea*, hibernating quite small, and feeding up in the spring.

Habitat.—In England this species is entirely confined to the Lake district, where it occurs in several places. In Scotland several localities are known, but only one in Ireland—Criagh Patrick, near Westport. It is a truly alpine species, occurring far up the mountain sides. On the Continent one or other form of this Butterfly is found on

several of the Alpine ranges, but it does not occur beyond Europe.

Variation.—I feel considerable hesitation in speaking of the varieties of this insect. The English form was formerly known as *Cassiope*, the distinguishing mark of which is the absence of white pupils to the black spots. When the insect was first taken in Scotland it was announced by Mr Newman as *E. melampus*, but this was soon found to be a mistake, and the insect was then declared to be the *Epiphron* of Knoch. *Epiphron* is supposed to be distinguished from *Cassiope* by the black spots having white centres, but the Scotch specimens are as often without them as with these white centres, which according to Staudinger are found in the female. The two forms occurring in Britain may be easily distinguished. The Scotch specimens are larger than the English, and darker in color. The fulvous marks are not so much of a band, but would be better described as a series of fulvous spots, divided by the wing rays, and having black middles, sometimes with white centres. Sometimes, however, these marks do form a band, while English specimens occasionally have it divided into spots. Notwithstanding the manner in which *Epiphron* and *Cassiope* seem to cross each other in their distinguishing characteristics, they seem to me to differ more than do some forms acknowledged to be distinct, and I shall not be surprised if, when the larvæ of both are better known, they are pronounced to be distinct species, but the genus is one of such extreme difficulty, that the most careful study should be given to it. I would advise no entomologist to be satisfied till he has a good series of both forms of this insect. There are other two named varieties, *Nelamus*, B., occurring on the Alps, which scarcely has any black spots, and *Pyrenaica*, H. S., occurring on the Pyrenees, which is larger than the type, and has larger eyes. I have heard of one specimen from Scotland in which the fulvous band is entirely wanting.

Parasites.—None known to me.

E. G. MEEK
NATURALIST,

56, BROMPTON ROAD, LONDON, S.W.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 76.

APRIL 9TH, 1881.

VOL. 2.

BIRDS' NESTS.

THE nests of birds have always arrested the attention of the admirers of the beautiful; their superb architecture has long been a topic for controversy and comment, and the person must be very indifferent to thought who can not see a wide field for study in the various forms and shapes of nests constructed by the various kinds of birds. We think a great injustice is done to the birds and to nature in denying the exercise of any reason to the constructors of these admirable dwellings. People wonder why there are so many different forms of nests, each species building its own peculiar kind. Mr. Wallace has shown that the explanation is not very far to seek. Each species, if it builds a nest at all, builds it of materials it finds in its every-day search for food: the hedge sparrow uses moss and hair, which it finds in hedge rows and farm yards; the Kingfisher uses fish bones; the Woodpecker chips of rotten wood; those birds which frequent mud flats frequently construct their Nests either entirely or partly of mud. It is not

strange that each bird varies in this respect, but it would be strange if each selected the same material. We refer to this subject now because we want our readers assistance. We have several times made similar requests which have been most liberally responded to. We asked for varieties of birds eggs and one correspondent alone has already sent us over a hundred figures of beautiful varieties. It is our intention to figure most of the nests of the smaller birds, and as there are several which we have not yet obtained, and as the time is near at hand for getting them, we should be obliged if persons who are favourably situated would be on the look out. Of course we may not require some of these for some time to come, but as the farmer's boy said by the strickle, the best time of the year to get it is *when you see it*.

Wilson believed that inferior or ill-constructed nests were built by young and inexperienced birds, while the best were made by those of age and experience. If young birds always paired together, and old ones did the same, there might be greater difference in nests in this respect, but as in the

human species, probably so with birds, that individuals are selected for youth and beauty, an old male frequently pairing with a young female, and by this means the one is able to instruct the other. Appended is a list of some of the species of which we require nests for figuring they may be sent safely through the post in stiff cardboard boxes folded in black cloth or paper, and a detached label for stamping. When a nest or egg is sent to us for figuring, the sender will receive a copy of the plate containing it when published, and the specimen will be returned if desired.

Red-backed Shrike,

Golden Oriole (some of our German subscribers may be able to obtain this)

Reed Wren,

Blue-throated Warbler

Dartford Warbler

Black Redstart

Stonechat

Lesser Whitethroat

Chiff chaff

Golden-crested Wren,

Long-tailed Tit

Bearded do.

Crested do.

Black-headed Bunting

Gold-finch

Siskin

Brambling

Crossbill

Rock Pipit

Wood Lark

Shore do.

We should also be glad of descriptions from personal observation of any of the larger nests.

NOTES, CAPTURES, &C.

MOSQUITO NETTING FOR INSECT NETS.—

Should there be any of your readers who intend to wield the green net of the Entomological Brotherhood during the forthcoming season, but who have not yet supplied themselves with that indispensable appliance, I beg, through the medium of your valuable journal, to introduce to their notice a substance, familiar to some, that I have used with success in the capture of Diurnal Lepidoptera. It is called "Mosquito Netting," and can be obtained at most of the large linen drapers' establishments. The price per yard—that is to say, a strip measuring about one yard by three—is eighteenpence, or thereabouts, and a square yard is amply sufficient to make a net of reasonable dimensions. It possesses many advantages, being extremely soft and light (though, when bought, it contains a small quantity of starch, easily removed by soaking it in warm water), allows a current of air to pass readily through, and enables the captor of an insect to examine his specimen without removing it from the net, or giving it the smallest possible chance of escape. A little green dye is all that is necessary to give it a less conspicuous appearance. Some of the smaller Micro-Lepidoptera, Hymenoptera, and Diptera contrive to squeeze through the meshes; but as beginners seldom trouble themselves with such small fry (and it is before that class of collectors I chiefly lay my remarks), they will find a butterfly-net constructed of mosquito netting of immense service, and I feel that I cannot too highly recommend it. I am tempted to lay the subject before you because I have, to the best of my recollection, never heard of the netting referred to as being in use by Entomologists. I take the liberty of enclosing a sample for your inspection.—CHARLES H. WALKER, 170, Falkner Street, Liverpool.

[We have used the material sent, which was purchased as "Net" for covering tree pits &c., in which we were rearing larvæ, b

never thought of using it for an insect-net, though it seems suitable enough, as it does not tear easily. It would be especially useful for a net for capturing water beetles, &c.—Eps.]

EXCHANGE.

DUPLICATES. — *Clivina fossor*, *Anchomenus arginatus*, *Bembidium quadriguttatum*, *Camptus*, *olymbetes fuscus*, *Agabus nebulosus*, *Cryptophagus vini*, *Aphodius fimetarius*, *Hoplatrum sabulosum* (unset) *Helops striatus*, *Eriolienus maculatus*, *Chrysomela polita*.—W. H. BENNETT, II, George St., Hastings.

THE FOUR SEASONS:

A Story from the Book of Nature; by

LUCY FERN.

Chap XI.

A STROLL NEAR HOME.

Setting out from their new home on a bright October morning, for a stroll round to see what surrounded them in their new home, we find JOHN with his fair partner searching the piece of waste ground at the end of the house.

"What are you doing there, laid on the damp ground? You will be certain to catch cold."

Looking up John saw SUNSHINE peeping through the hedge, and she presently came forward to see what he was doing.

"I am just admiring the exquisite beauty of the fructification of this little moss. Just look here, SUNSHINE; you see all those heads which bend from the tops of slender stalks? Well, those are the spore cases, or seed vessels. You see this one comes to a point and is somewhat pear shaped. In this one you see the point has come off in the shape of a lid, because the contents were ripe and ready for being dispersed, so nature has operated them. If you take this pocket magnifier, and look, you will see round the

opening where the lid came off, a row of beautiful teeth which botanists call *peristoma*, (*peri*—around, and *stoma*—a mouth)."

"I dare say there were several thousands of spores in this little cup; they must, indeed, be very small."

"Yes, it is surprising how so minute a speck can contain vitality! so small that they are blown about in the air, and people wonder how it is that moss springs up almost everywhere."

SUNSHINE left them to attend to house duties.

JOHN and his wife proceeded through the wood at the end of the waste. On their way a large tin vasculum was filled with mosses, lichens and fungi. Some of the latter were most beautiful,—some almost white; others a bright yellow; a few green; and every now and then one like a strawberry tart studded on the top with candid sugar.

"Can you distinguish, dear, between the edible and poisonous kinds?"

"No, I am not certain that I can, and, therefore, not being certain I prefer to let the eating alone. I know that all the very brightly colored ones are poisonous, but I know also that there are some very wholesome ones, if we could only distinguish them."

Here and there were taken from the tree trunks a beautiful Brown umber moth (*Hibernia defoliaria*), and occasionally the wingless, spider-like female would be seen in a similar position.

The path which led through the wood ended in a lane, and following this enabled them to pick up many treasures in the shape of mosses, lichens, fungi, and ferns; for most of the flowering plants had now begun to decay, yet a few were in their perfection, such as, the Autumn crocus (*Colchicum autumnale*), which now and then put up its purple blossom in some fragrant meadow. Along the hedgerows, upon the old walls, and in every little pool, were something to interest and to entertain. While others dozed on their couch at home, or perhaps walked out

with closed eyes; while some wasted their energy upon profitless pursuits, or even gloated themselves by life-destroying habits of intemperance; our two learnt a lesson from every withered leaf that blew across their path, or which lay in the damp gully skeletonised by the atmospheric influences. Every little patch of moss had its own individual beauty; every robin that essayed its short, but ever pleasant song, filled them with new delight,—with new life: the world to them was not a "vale of tears;" they had not a soul of sorrow and discontent: the world to them was full of beauty, full of wonder; and to them the greatest impulse to do right came from the fact that every object in nature, however minute or significant, had fixed laws and principles to which it always adhered. Every country lane is in itself a library of knowledge, but people will not read; every hill-side is a manufactory of health, but people prefer to stay in narrow courts and crowded dwellings, and sicken and die; every stream furnishes life—a free gift of nature,—but people prefer to pay dear and drink death. When shall the time arrive when those who pretend to believe that all the beautiful in nature was made for the gratification of man shall not turn away and close both eyes and intellect against that beauty?

(To be continued.)

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

MEDEA, W V., Pl. 4, Fig 13.

ÆTHIOPS, ESP., BLANDINA, FABR.
The Scotch Argus.

"BLANDINA, F., *Blandina*, the name of a slave who was martyred during the persecution of the church at Lyons, A.D., 177."—A.L.

Æthiops was, no doubt, given to this species from its dark colour.

Imago.—Pl. 13, Fig. 4. Rich dark brown, with a fulvous band, containing several eyed spots, near the hind margin of both wings. The female is paler in colour, and generally has more eyed spots than the male.

Larva.—Pl. 13, Fig. 4a. Pale stone colour. Dorsal line white, broadest near the head, a narrow line on each side; a brown line above, shading off to the ground colour. Spinacular line greenish drab. There are other narrow lines between these, darker than the ground colour; head brownish drab. This description, which does not agree with that given by Mr. Newman, was taken from the living larva last year, and all that I had were exactly alike.

Pupa.—Pale stone colour, almost without markings, and very stumpy. It is not suspended by the tail, but the larva goes down among the grass stems, and there changes. Before the butterfly emerges the entire chrysalis becomes of a deep brown hue, the eyes being the first portion to change in colour.

Food Plants.—Mr. Newman gives Brown Bent Grass (*Agrostis canina*) as the only food he knew of. Mr. Wailes, in the Tyneside Naturalist's Field Club for 1858, mentioned having the larva then "feeding on several species of *Poa*." The larva I had last year were nearly full fed when I got them, but they also ate several species of *Poa*.

Times of Appearance.—The butterfly emerges about the last week in July, and continues some time on the wing but is soon worn. The eggs are attached singly to the blades of grass; they hatch in 10 or 12 days, and the larva feeds a few weeks before hybernation. About May it begins to feed again, and is full fed by the middle middle or end of June.

Habitat.—Not so much a mountain insect as others of the genus. In Scotland it has been noticed that it does not range above 800 or 1000 feet above the sea level, while in Castle Eden Dene (Durham County) it is abundant at the sea level, and within a few hundred yards of high water mark. It fre-

quents open grassy places among trees, but is sometimes extremely local. In one wood near Castle Eden it is abundant close up to the turnpike which passes through the wood, but it never occurs on the other side of the road. While it is generally distributed in Scotland, it is only known in the northern counties of England, excluding Northumberland. It occurs in several parts of Europe: in Switzerland, Turkey, the Caucasus, and the mountains of Eastern Siberia.

Variation.—*Medea* varies in the extent of the fulvous band, and in the number and size of the eyed spots. The difference of the sexes has already been named. The Swiss specimens I have seen, are larger than British specimens, and the females have one eyed spot more on the fore wing, like *Ligea*. I am not clear that this is the variety called *Leucotenia*, in Staudinger's catalogue, the fascia on the underside does not differ in my specimens from some of the British forms, so that it is probably not this variety. Another is named *Melusina*, H.S. It has the fulvous band on the wings more obscured. In my own collection is a single example of this butterfly with one of the hind wings bleached in the same way as *Janira* so often is, but scarcely to so great an extent. There is a variety of the female (Pl. 13, Fig. 42) with a pale ash-coloured band across the underside of the hind wings.

Parasites.—From the larvæ I had last year (1880), both Mr. Mosley and I bred specimens of a small Ichmenumon, which we have not yet been able to determine.

Genus. III, *Cænonympha*, Hb.

"This genus comprises the smallest species of the present family, which are distinguished by the strongly swollen condition of the base of the three principal veins of the fore wings, the entire margin of all the wings clothed with long fringe, the place of insertion of the second branch of the postcostal vein of the fore wings, the eyes naked, the colours generally uniform fulvous or brownish ochre,

with a more or less distinct eyelet near the tip, and another more rarely near the anal angle of the fore wings, and the hind wings with a broad whitish irregular bar beyond the middle of the under-side, followed by a row of small ocelli, or simple small pale dots, which are succeeded in some of the species by a silver submarginal line."—Westwood, *Genera of Diurnal Lepidoptera*.

This genus includes between twenty and thirty species, the greater part of which are European, two occurring in Great Britain.

PAMPHILUS, Linn. Pl. 16, fig. 4.

The Small Heath.

"PAMPHILUS, L., *Pamphilus*, a common name among the Romans.—A. L.

Imago.—Pl. 16, Fig. 4. — Uniformly pale brown, with an eyed spot at the tip, which is sometimes scarcely visible, the margins darker, Under-side:—Fore wing like the upper side, but the eyed spot much more distinct, being a white-centred black spot in a yellow ring. Hind wing dark, greenish towards the base, then an irregular pale band, not extending beyond the middle of the wing, beyond this the wing is paler and rather clouded, and a row of spots more or less distinct may be traced.

Larva.—Green, with darker dorsal, subdorsal, and spiracular lines.

Pupa.—Suspended by the tail, bright green, with minute white spots, rather broad and blunt at the head.

Food Plant.—Various species of grass, small mat grass (*Neudus stricta*), annual meadow grass (*Poa annua*), crested dog-tail grass (*Cynosurus cristatus*).

Times of Appearance.—This butterfly may be found from May to the end of summer, but perhaps is most abundant when the first brood is fairly on the wing. The larvæ appears to hybernate in various stages of growth, and might probably be found all the year round, as there is evidently a continued succession of broods. I am not in a position to say that it passes the winter in the pupa

state, but Owen Wilson gives July to May as dates for its occurrence.

Habitat.—All sorts of grassy places, heaths and moss, railway banks, pastures, grassy lanes, &c. It is distributed all over the British Isles, and occurs commonly in most of places, but there are some districts (the neighbourhood of Huddersfield for instance) where it is entirely absent without any apparent reason. It occurs all over Europe, except in the extreme north, and occurs also in Asia and Northern Africa. In Kirby's Catalogue, Colorado is given as a locality, but it seems strange if it occurs in a place so widely separated from its other habitats.

Variation.—A variety of this species with paler ground color sometimes occurs. Specimens are not uncommon with a distinct dark border round the wings, (pl. 16, 4a) this is called *Lyllus*, Esp., and is most abundant in the South of Europe, but is far from unfrequent in Britain, and the species may be found in every degree of variation from the type to the extreme form of the variety. One in my collection, taken in Sherwood Forest, is very pale coloured, which makes the dark border still more distinct. It is worth while noticing whether the dark bordered form in this country come from larvæ that have hybernated, or fed up during summer. A variety named *Pamphilordes*, Reak., is given in Kirby, but I do not know how it differs.

Parasites.—Common as is this butterfly the larva is rarely met with, and I have heard of no parasites being named from it. It only needs careful searching for in grassy places.

BRITISH BIRDS; THEIR NESTS AND EGGS.

By S. L. MOSLEY.

Genus VI. *Milvus*.

Milvus.—The Latin name for Kite.

This genus is characterised by its great

length of tail and wings, short legs, and general swallow-like appearance. Only one species is—or has been—a native of Britain, and may at once be distinguished from all other hawks by its *forked tail*. A single specimen of the Black Kite has been obtained in Britain; it differs from the present species in being much darker in its plumage. The Swallow-tailed Kite is an American species, and stragglers have occasionally reached our shores. Both these latter species will be noticed as accidental visitors.

7. KITE.

Milvus regalis, Briss.

(GlädeSweden).

Milan Royal (France).

Pojana

Milvo

Nicchio

Nibbio

(Italy).

Rother milan (Germany).

Barcud (Anct. Brit.)

This bird is sometimes called "Gled" in England, and this, as well as the Swedish name, are probably derived from the Saxon word "glida," to glide or sail on the wing.

REGALIS.—Royal, from *Rego* (L.) I rule.

Size.—Male 2 ft. 2 in. in length, and about 5 ft. from tip to tip of wings. Female 2 ft. 6 in. long, and 5 ft. 6 in. in expanse.

Plumage.—Mr. Varley, of Huddersfield, has a very fine specimen in his collection, from which the figure has been taken. The head is ashy grey; back reddish brown, the feathers margined with lighter red; primaries nearly black; tail reddish brown, the margins of the feathers lighter. Throat reddish white, gradually increasing to burnt sienna, each feather with a dark stripe down the centre. Bill bluish horn color; cere, legs, and eyes yellow. The sexes do not differ in plumage.

THE YOUNG in down are white.

VARIETIES of this species seem to be very rare, I believe a white one has been recorded but cannot at present refer to it.

Note.—The note of the Kite is described

as a shrill squeal, resembling the word "whew." The young birds make a noise very like a kitten mewling.

Flight.—On the wing this bird is seen to the best advantage, its flight being very elegant, it glides with outstretched, and apparently motionless wings, making large sweeping circles around a poultry yard, or some other source of attraction. In common with some other hawks it sometimes wheels in circles, and ascends to such a height as to become almost or completely invisible. It is very easy to distinguish on the wing if the observer is near enough to see the forked end of its tail.

Migration.—In most of the countries of Europe, especially the northern ones, the Kite retires on the approach of winter, to the warmer parts of Africa. Even in Palestine the Kite moves south in the autumn, returning in early spring to the ravines of Ledanon and Gilead to breed.

Food.—The Kite seems to be almost omnivorous, feeding upon leverets, rabbits, birds, fish, moles, rats, and mice; also on reptiles, worms, and probably insects. It is said to be very fond of chickens, for which it will run into great danger in visiting farm yards. It is not very choice in its food, and will even feast off carrion. It may sometimes be seen skimming over a sheet of water, or following the course of a stream, where it will dip down, and take dead fish, or other animals floating on the surface. When it takes its prey alive it generally steals upon it, and snatches it from the ground.

IN CONFINEMENT it is easily tamed, especially if taken from the nest when young. It is said to be very fond of rats and mice. When the Kite was abundant in England it was no uncommon thing to see one descend into the streets of London, or other large town, in order to pick up some dead fish or other offal, in this way rendering great service in clearing away offensive and putrid matter.

Habitat.—Though this species is not

now known to breed in this country, or at any rate to have any regular nesting places, it has done so within a very recent period, and doubtless would soon establish itself again, were it not for the constant war waged against every bird of prey by the gamekeepers. The Kite, from its habit of taking its prey on the ground, and not caring whether it be dead or alive, is very readily taken in a trap, and has thus been easily exterminated. It is rarely seen in England now, and any chance visitor has little opportunity to escape the numerous traps and guns ready for its destruction. It prefers downs and hilly districts, especially if well wooded with tall trees. In Scotland and Wales it used to be equally common, but is quite as rare now. It is said to have been common in some parts of Ireland over a hundred years ago; but is now a very occasional visitor.

ABROAD it is found all over Europe, common in Palestine. In the flat districts of Southern Russia it is abundant, and is found during winter in North Africa.

Nest.—The nest is either placed in a tall tree, or on the face of a rock, and if the latter generally where some small tree or shrub comes out from a crevice. It is composed of sticks, with bones, pieces of old leather, &c., lined with wool, or any soft material the bird can get hold of, such as pieces of old linen, cloth, &c., and is sometimes of large size. The last one recorded in Yorkshire was taken by Mr. Hugh Reid from a tree in Edlington Wood, near Doncaster. The old birds are very strongly attached to their nest, and will fight desperately with any intruder, so that more than one nest is seldom found in the same locality.

Eggs.—Three is the usual number of eggs laid by this bird. The ground color is bluish white, with red-brown blotches and streaks, chiefly at the larger end. They are not unlike some eggs of the common Buzzard, but Wooley says they may be distinguished by the those of the Kite having a greenish cast when held against the light.

THE YOUNG NATURALIST.

E. G. MEEK NATURALIST,

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 77.

APRIL 16TH, 1881.

VOL. 2.

ON ARRANGING BIRD EGGS IN THE CABINET.

IN No. 3, vol. 1, we gave a few instructions on the best methods of preparing Birds' Eggs for the Cabinet. In concluding it we promised a paper on another occasion, on the arrangement of those fragile objects, but one thing or another has come in the way, and it has been delayed till now. Perhaps one reason why it has been put off, has been that we are not well satisfied with any method that we have seen adopted. Perhaps, however, this paper will lead, as similar papers have led before, to others penning their ideas on the subject, and if our suggestions are not satisfactory, better ones may come from one or other of our readers. The drawers of an Egg Cabinet should be, and generally are, made of different depths. Two inches is abundantly deep enough for all small eggs, while four, or even six inches, is not too deep for the larger eggs. They should be covered with glass, fitted in a frame, such as are used for insect drawers, so as to exclude dust. In museums, where eggs are exposed to

the public, they very soon lose their colour: and we have seen covers both of brown paper and of green glazed calico over them, which the visitor needed to raise before the contents of the cases could be seen, and which fell back of themselves so as to cover the glass. This, of course is a great improvement over the exposed case, but where the collector has a cabinet for his eggs, the more complete darkness in which the drawers will be kept will be much better.

In arranging the eggs in the drawers, neatly made divisions of either deal or mahogany, or even of cardboard, are often used. The spaces made by those partitions are best all of one size in one drawer, but must vary in different drawers according to the size of the eggs, and the variable nature of their markings. Of many birds you may get one or two eggs that are characteristic of the whole, and where that is so, there is no advantage in taking more than this. The egg of the Hedge Sparrow, for instance, is so constant in its colour and want of marking that two or three specimens are as good as a hundred; but with an egg like that

of the common Guillemot the number you would find worth keeping is only limited by your cabinet space. When this plan is adopted the lower part of the space for the eggs should be partly filled with cotton wadding. We prefer either pink or white, both of which can be purchased at a very small price, white being about 2d. or 3d. per sheet, and pink about 6d. No shade looks so well as pink, as no eggs are of the same colour, and it contrasts well with all green tints. The wadding should be put into the spaces, so that the smaller ones will not appear to be lower down in the divisions. The names of the birds should be neatly gummed on to the edge of the partitions, which, if deal, should be neatly covered with white paper.

Some prefer to these fixed partitions, to gum their eggs on to pieces of stiff card, which are then arranged in order in the drawers, and fastened with small pins. The names of the birds, and any details concerning the eggs themselves, where obtained, &c., can be written at the bottom of the card; and we have seen a collection arranged in this way that not only looked well, but was exceedingly interesting to examine from the correctness of the notes. Still, we always feel sorry to see eggs gummed to the cards, because they cannot be removed without injury if it is desired to change their position. Some years ago we saw the collection of the well-known African traveller Canon Tristram. He was then arranging them on an entirely new

method, which he thought would be the best yet devised. He had a number of punches of various sizes, exactly like those used for cutting gun waddings, but oval shaped instead of circular. With these he punched as many holes in a piece of card as he desired to mount specimens. The ends of the card were then cut half through, and bent down till they were at right angles. A strip of paper was gummed from one to the other to keep them in their place, and each was then complete. Before the eggs were put on the stand, a very thin sheet of cotton wadding was carefully laid over it, so that the eggs, in filling up the hole cut for them, had this wadding to protect them against the hard edge of the cardboard. Those we saw finished were rather large eggs, and were mounted one or two on a stand, and looked well. Smaller eggs he intended arranging in larger numbers. The method appeared to be rather troublesome, but he seemed to think its advantages would compensate for the trouble. They were as well shown as when gummed on cards, were placed in nice order and with perfect regularity, and could not roll about as do loose specimens; the arrangement of the stands was easily altered, and they did not take up more room than they would in an ordinary way, while by varying the length left on for the ends of the stand, the eggs were all raised to the same level. No doubt his set of punches would be rather costly, but we think, with practice, the

holes could be neatly cut in the same way as they are cut for photograph mounts, or small ones punched with a joiner's gouge.

NOTES, CAPTURES, &C.

REARING O. POTATORIA.—During the last two years I have reared a great number of the larvæ of *Olonestis potatoria*, and always found that they preferred rough grass, such as *Triticum repens*, the Couch Grass, (*Dactylis glomerata*), the Cocksfoot Grass, &c. What plant does your correspondent, Mr. H. Kerry, Harwich, mean by the Common Reed?

ROBERT BROWN, Toxteth Park, Liverpool.

A PRODUCTIVE BEETLE TRAP.—Last autumn I found two or three common Carabidæ in an area in front of my cellar windows, which is usually pretty full of dead leaves. This was nothing remarkable, but still I thought I would look again, and my various searches were rewarded with half a dozen specimens of that lovely insect *Leistus spinibarbis*. The other day I had another search, and found it so productive that I have thrown leaves into several corners and sheltered places, looking them over every day. The principal captures are Carabidæ, such as the *Leistus* aforesaid, genus *Carabus*, and genus *Pterostichus*. There are also several species of *Staphylinidæ*, notably *Ocyfus cupreus*, *Sachinus subterraneus*, and several *Philonthi*. I think it would be well worth the trouble if your coleopteris and readers were to try this plan, which has already (in less than a week) added half a dozen species to my collection.—H. BEDFORD PIM, Upper Norwood.

NORTH STAFFORDSHIRE NATURALISTS' FIELD CLUB

AND

ARCHÆOLOGICAL SOCIETY.

We have again received the Report of this Society, a volume of over 100 pages of reports, papers, and accounts of excursions of the Club. There have been seven of these during

1879, the accounts of which are mostly archæological and historical. The sectional reports are only two—one on Geology and one on Entomology, from the pen of the Secretary, the Rev. S. W. Daltry. Seven species of Lepidoptera were added to the Staffordshire list during 1879, which there, as elsewhere, was noted for its cold, cheerless, sunless summer, the absence of common Butterflies, and the unusual abundance of the Painted Lady (*P. cardui*). Several rarities are also recorded—*A. albi*, *P. festuæ*, and *Interrogationis*, and others. The evening meetings are held alternately at the chief towns in the district, an excellent plan for extending the influence of the Club. The members in the various towns take the opportunity of these gatherings to exhibit whatever in their collections appears to be of special interest, and after the routine business papers on various subjects are read. At the first meeting at Hanley record was made of the finding of the nest (with two eggs) of the Stormy Petrel, near the Trent, at Weston; and also of two Swallows being seen at Madeley on the 28th March (79), a fact which was said "supported the theory that the migration of Swallows from this country was not universal." At the February meeting at Newcastle, among the flowers shown was one "of the Crocus type," blooming six months after date. Probably this was *Colchicum autumnale*, the spring blooming of which was noted in No. 28 of our first volume, in an interesting paper by Mrs. Hutchinson, of Leominster. Among the papers which were read was a very interesting one, on the methods by which, at one stage or other of their existence, the Lepidoptera seek to preserve themselves from attack. The paper, which is worth quoting *in extenso*, speaks of the manner in which the egg is deposited for safety, and to be near the food of the young larva; of the manner in which some larvæ conceal themselves, while others escape notice by their resemblance to a twig of the food plant; of the concealment

of the pupa; and finally of the imago. "As a rule the moths that rest in exposed situations during the day bear a striking resemblance to the substance in close proximity. It is very amusing to ask a novice to point out to you a moth on the tree trunk before which he stands; he runs his eye up and down, and declares there is no moth." After speaking of "mimicry" the paper concludes with detailed accounts of various means adopted for capturing Lepidoptera. Sugar-ing is described as being "very uncertain in its results." We cannot but think of sufficient attention to meteorological conditions was paid, that we should arrive at greater certainty with regard to "sugar." Another very interesting paper is in "The intelligence of animals compared with that of man;" but we cannot spare space for extracts. One on "Some Fossil Trees in a mail pit near Hanley" is illustrated, with a figure of one of the most remarkable of them. A list of the members, numbering 318, is given; of course it includes several well-known names. Altogether the report is a good one, and of interest to the general reader.

NATURAL HISTORY DIARY.

By J. W. CARTER, Bradford.

March

8th.—Skylarks singing merrily. (S. L. M.)

9th.—Hazel in flower. (H. T. S.)

11th.—Chaffinches and Thrushes in full song. (E. P. P. B.)

12th.—Corn Buntings heard singing. — (E. P. P. B.)—Pied Wagtails arrive, very common. (J. F.)—*H. progemmaria* out; Shipley Glen. (J. F.) This ubiquitous species has occurred in large numbers here, and in every conceivable form; several specimens of the dark unicolourous variety (*Fuscata*) have been obtained. *C. flavicornis* out; Shipley Glen, on boles of birch, &c. This species has been much commoner than ever I have known it before; the 12th being a remarkably fine

and warm day, they appeared to emerge simultaneously in good numbers, thirty specimens being taken by one collector. Alder (*Alnus glutinosa*) in flower.

13th.—*A. æscularia* out; Shipley Glen. (J. F.) Not common in this district.—Yellow-hammer heard singing. (S. L. M.)

20th.—Wheatear seen near Allerton. I did not see them myself till the 26th, when I saw three—two males and one female. On the following day (27th) they appeared to be generally distributed. Ground covered with snow to the average depth of three inches. Considering the exceptionally cold weather, they are decidedly before their average time of arrival. (E. P. P. B.)

26th.—Wheatear seen, Huddersfield. (S. L. M.)

31st.—Stock Dove's nest containing eggs; Bingley Wood, in the old ruins. Not uncommon in this locality. The keepers tell me they sometimes find its nest in old rabbit burrows. (E. P. P. B.)—During the whole of the month we have had north, north-west, and east winds, preceded in the early part by a heavy snowstorm.

THE FOUR SEASONS:

A Story from the Book of Nature; by
LUCY FERN.

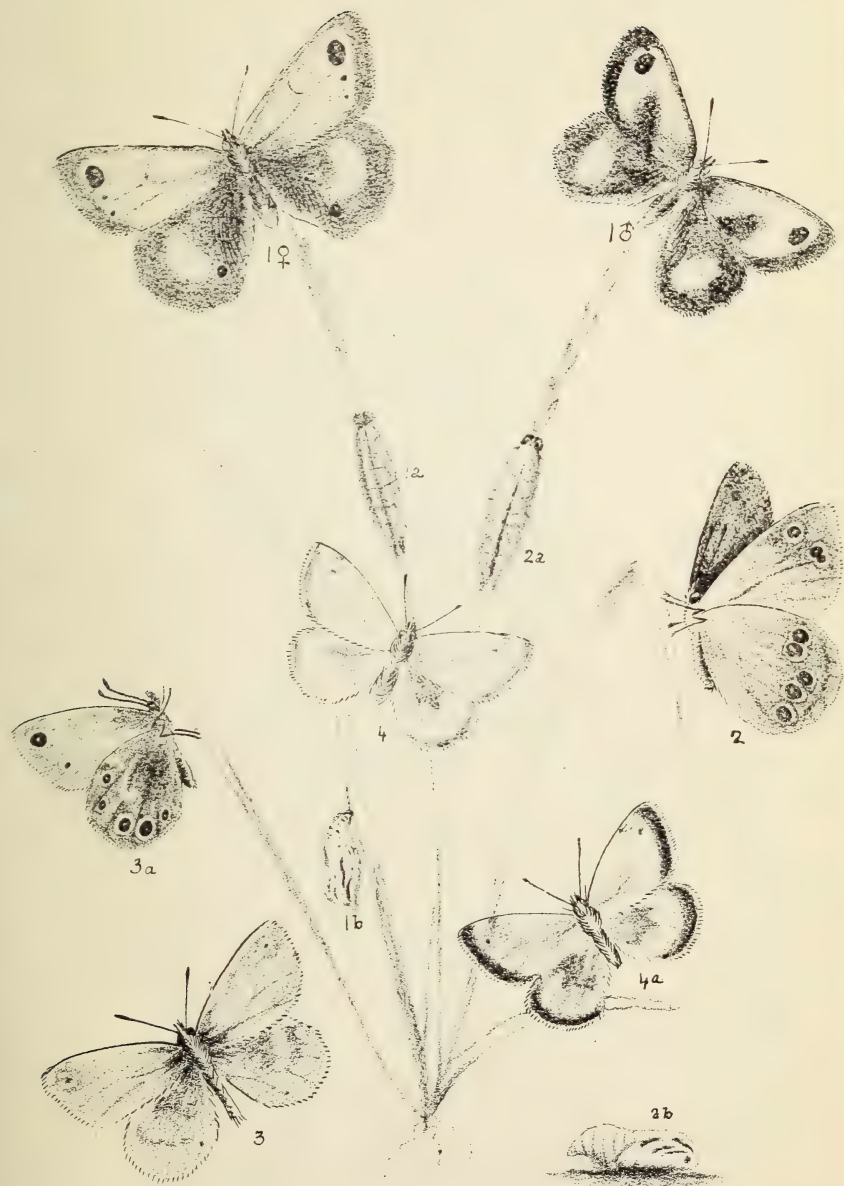
Chap XI.

STROLL CONTINUED.

Following the lane led through pleasant fields, until presently they began to ascend the hill, and after half-an-hour's walk sat down for a rest and for the pleasure of the view of the scene.

"Do you think those hills are caused by volcanic eruptions?" asked JOHN.

"Well, I should hardly think they are," answered his wife; "there does not seem to be many volcanic rocks in this neighbourhood. I should say the valleys have been scooped out by denudation, that is, by the wearing away of the sides. If you look after



Satyrus Tithonus 1.
 " *Hyperanthus* 2.
Chortobius Davus 3.
 " *Pamphilus* 4.



a sharp thunder shower, you will see each little stream carrying down earth, sand, and small stones, which have been loosened by frost and atmospheric influences. This debris is carried down, accumulating as it progresses, until, finally, it is deposited in some quiet pool, or at the mouth of some river. This, probably, has been going on for ages, and only allow sufficient time and it is very easy to see that all this valley may have been hollowed out in this way."

"Then we should expect to find the same beds of rock on the opposite side of the valley that there are on this, because at one time they must have been continuous across the valley."

"Yes: the same beds should, to a great extent, appear on the opposite side; sometimes when a rock is "dipping," as geologists say when it is slanting, the two sides will not correspond, because the upper beds are so much inclined that they would run out before they reached the opposite hill."

"If you like, then, we will some day take a walk up the other side of the valley, to ascertain if such be the case; but time is getting on, just let us go to the top, and then we will return."

Another five minutes' walk brought them to the top of the hill, where they found an old quarry with piles of loose stones.

"I have heard," said the lady, "that a particular kind of moth, *Dasyptolia templi*, is found in such situations as this; just let us have a look while we are here. They hide under the stones."

So JOHN set to work turning over the larger stones, while she examined the smaller pieces. They turned a long while without finding any signs of life, save now and then a half-starved spider. Then a shining green-bottle fly rewarded their labours; then a hibernating female wasp, until, when they were about to give up the search, a stone was turned which revealed a beautiful *templi* sitting quietly underneath. With the exercise of patience and more labour, three or four more were ob-

tained, and they were just about to leave, when a person with an air of dignity walked up to JOHN, and asked him what he was doing?

"Seeking moths, sir!"

"What! I suppose you mean buzzards? Well, it's all very well to tell such tales to somebody as knows no better; but it's all moonshine, and don't think a bamboozling me. It's a pity a feller cannot keep a few rabbits quietly, but they should be hunted up by everybody. An' I see yo' brought yo'r wife to help yo'. Well, t'best advice as I can give yo' is to get off my land as soon as yo' can."

In vain did JOHN attempt to explain; even when shown the insects they had caught, Farmer Blunt would have it that they were after his rabbits, and demanded their speedy exit.

(To be continued.)

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

TYPHON, ROTT.—(Pl. 16, Fig. 3.)

TYPHON.—This name appears to have priority by two years over *Dacus*, which has generally been used by English writers. Considerable confusion has been created by the manner in which the names of the type and varieties have been mixed up, which we will endeavour to clear up under the head "Variation."

Imago.—Pl. 16, Fig. 3.—Uniformly dull brown, with or without one or more eyed spots. Under-side similar in colour, the hind wing darker towards the base. A more or less distinct pale band crosses both wings, beyond which are several more or less distinctly eyed spots, largest and most numerous in the hind wing, but sometimes scarcely traceable.

Larva.—Dark green; dorsal line darker

edged with yellow, spiracular line yellow, spiracles brownish.

Pupa.—Suspended by the tail from a grass stem, green or pale brown, clouded, and marked with darker, rather short and stumpy.

Food Plants.—Owen, Wilson, and Newman give Beak Rush (*Rhyncospora alba*) as the only known food of this species, but a writer (Mr. Joseph Chappell) in the *Entomologists' Weekly Intelligencer*, vol. 1, p. 35, says.—“The larva of this species feeds on the cotton grass, near the roots, in May; it is green, with six white lines. The Pupa is green, with three dusky stripes on each wing case; it is suspended by the tail.”

Habitat.—Typhon frequents damp moors, bogs, and mosses; is found in Ireland, in the northern counties of England, and in Scotland. It occurs in Northern Europe, Asia, and America, but is not found at all in more southern localities.

Variation.—A very variable species. The specimens occurring at Chat Moss, Manchester, and other of the more southerly localities are darker in hue than those found further north, and the eyes are much larger and more distinct. Four, five, or even six distinct black, white-centred spots, in pale rings, are on the under-side of the hind wings, and two or three on the fore wings, which show more or less distinctly through to the upper side. This form with large distinct eyes (Fig. 3a) is the *Philoxenus* of Esper, is called *Davus* in Kirby's *European Butterflies*, and *Rothliebii* in Newman's *British Butterflies*. In the North of England and in Scotland the specimens are paler in colour, the band on the under-side is less distinct, and the eyed spots fewer in number and much less distinct, some of them being a mere pale dot, without trace of either the black-spot or white centre. This form is the *Laidion* of Borkhausen, and is the same as that called *Typhon* in Kirby, and *Davus* in Newman. A third variety, smaller and still paler, with the eyed spots entirely wanting,

or only traceable as pale dots, and the pale band little different from the ground color, occurs in Lapland, and is called *Isis*, Thub. I expect this is similar to that figured on page 97 by Newman, from Shetland, and as those from Orkney spoken of by Doubleday, as and being nearly white. The names *Typhon* *Davus* are general terms, including all the varieties.

Parasites.—None known, the species having been rarely bred.

Genus IV, *Salysius*.

“SATYRUS, Bdv., *Saty'rus*, a Satyr, a rustic deity, half man, and half goat. Cf. Virg. Ecl. v. 73.”—A.L.

The species included in this genus in Doubleday's Catalogue are placed in three separate genera by Kirby. We have followed Doubleday rather to avoid confusion, than that there is not sufficient distinction, at any rate so far as the first two species are concerned, for they have hairy eyes, a very marked characteristic. There is also some doubt as to the state in which they pass the winter, as will be seen under each species. The synonymy of these Genera is very confused. We give in three columns the species, and the names of the Genera applied to them by different authors:—

Doubleday.	Westwood.	Kirby.
SATYRUS.	LASIOMATER.	SATYRUS.
<i>Egeria</i> .	<i>Egeria</i> .	<i>Egeria</i> .
<i>Megara</i> .	<i>Megara</i> .	<i>Megara</i> .
	SATYRUS.	EPHINEPHLE.
<i>Janira</i> .	<i>Janira</i> .	<i>Janira</i> .
<i>Tithorun</i> .	<i>Tithornus</i> .	<i>Tithornus</i> .
<i>Hyperanthus</i> .	<i>Hyperanthus</i> .	HIPPARCHIA.
		<i>Hyperanthus</i> .
<i>Semele</i> .	<i>Semele</i> .	<i>Semele</i> .

This will show how the generic names have been mixed, and how closely allied the species must be. The third column is the most modern arrangement, and that most in use in this country, where our limited number of Butterflies and insular prejudices prevent

much attention being paid to the *Rhopalocera* except by students.

The species are various shades of brown, and generally have eyed spots on one or both wings.

ÆGERIA, L.—(Pl. 14, Fig. 1.)

THE SPECKLED WOOD.

"*ÆGERIA*, L., *Egeria* (*Ægeria*), a nymph who was supposed to have favoured and instructed Numa Pamphilius. Ovid, Fast. III., 275."—A. L.

Imago.—Pl. 14, Fig. 1.—Dark brown, with about nine irregular pale yellowish-brown spots (sometimes nearly white) along costa and hind margin of the fore wing, and one on the costa of the hind wing. The spot at the tip of the fore wing has a white-centred black spot within it, and the hind wing has at the hind margin three pale yellow rings, also enclosing white-centred black spots, and one more at the tip, in which the black spot is often wanting.

Larva.—Pl. 14, Fig. 1a.—Dull brownish-green; dorsal stripe darker, and bordered by a paler line; spiracular line pale, with darker line above. In some specimens there is another line between these. The entire surface is rather rough and warty, and covered with short hairs.

Pupa.—Pl. 14, Fig. 16.—Green or brownish-green, with darker marks. Rather short. Suspended by the tail. We are indebted to Miss Sotheby for the larva and pupa to figure.

Food Plant.—Various species of grass.

Times of Appearance.—In ordinary seasons the Butterfly emerges from the pupa about the middle of April. The eggs are laid singly on the grass blades, and soon hatch. The larvæ are full fed in June or July, and pupa may be found in the latter month. It remains but a few days in this state, and by the end of July the insect is again upon the wing. The second Brood of larvæ may be found at the latter end of August or in Sep-

tember, when they are generally understood to hibernate and feed up in early spring. On this point some doubt was thrown in a paper by Mr. Fitch, in the *Entomologist* for 1879. Miss Sotheby (*Entomologist*, vol. ii., 251) had some larvæ in 1878, one of which turned to a pupa on 10th October of that year. The Rev. Joseph Greene also, in his well-known paper on "Pupa Digging," says he has several times met with the pupa of this species, which "passes the winter in that state." In neither case are we informed when the Imago emerged, and it may be that in forward seasons, as stated by Lewin nearly a century ago, that there is a third brood of the species, or that the autumn pupa produce barren imagines, as we know occurs in other cases. It is not much to the credit British Entomologists that there should be any doubt as to the state in which so common a species passes the winter, particularly when we have so few Butterflies to study.

Habitat.—Woods and shady lanes. Is said to be common everywhere but in the north of Scotland, but it seems to have disappeared from many of its former habitats, and is now certainly not common in many places where it was formerly abundant. It is generally distributed throughout Europe, and one form occurs in Western Africa.

Varieties.—Three named varieties are given in Kirby, viz.: *Tircis*, Godt.; *Meone*, Cram.; *Xiphia*, Faber. I know nothing of *Tircis* or *Xiphia*, but *Meone* is a form found in South Europe and in Africa, which has the light marks of an orange or tawny hue. In Staudinger's catalogue this form is considered to be the type, and is called *Ægeria*, with *Meone* as a synonym, while one northern form is considered to be a variety, and is called *Egerides*. Abnormal forms are not common. The pale spots vary in size, but I have seen no other aberrant specimens. A variety with bipupilled eye is said to be common in the Channel Islands, but I have not seen one.

Parasites.—I know of none.

THE YOUNG NATURALIST.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 78.

APRIL 23RD, 1881.

VOL. 2.

HOW TO BEGIN.

EGGS OF LEPIDOPTERA.

OF late years a great impetus has been given to breeding Insects from their earlier stages. Not only were finer cabinet specimens obtained, but much knowledge was gained, and eggs of Lepidoptera which were at one time thrown away as useless, are now prized greatly. We have not as yet learned how to preserve insect eggs, so as to be able to examine them at our leisure. If they are impregnated they hatch when the time comes, if they are not, they shrivel up; but drawings have been made of many of them, and some are very beautiful objects. Probably when more of them are figured they also will help us to a knowledge of the affinity one species or genus bears to another, and assist in the elucidation of many points as yet dark to us. Our present object is not so much to speak on that part of the subject as to help our younger readers a little in obtaining eggs of Lepidoptera, and rearing the imagines. A short article on the subject will be found at

Page 209 of our first volume, but we propose now to extend our remarks a little, and will begin with searching for the eggs when deposited by the butterfly or moth in the usual way.

To find the eggs of Lepidoptera some knowledge and much patience is needed. To look for them in any systematic way requires the collector to know the food plant of the larva, and where it occurs, and when the imago deposits them. It would be a waste of time to search for eggs of the hibernating *Vanessidæ* (*Urticæ*, *Io*, &c.) in the autumn or winter, and even the period of copulation is not always a guide, for while some species begin to deposit their eggs immediately, others do not do so for shorter or longer periods afterwards. Still it may be safely concluded, except in case of hibernating species, which never deposit their eggs till spring, that when the species is beginning to be worn, the eggs may be successfully looked for. Species that emerge late in the year, and do not hibernate, generally pass the winter in the egg state, and in many cases they are either concealed, or some covering or protection is

afforded to shield them from the attacks of enemies, as well as from the cold. The common Gold Tail (*A. chrysorrhæa*) covers them with a brown down from her anal segments, which is securely glued over them. Others appear to be coated with a sort of varnish, which is adhesive at first, and fastens them to the place where they are deposited, and others are carefully concealed in crevices of bark, axils of leaves, &c. Eggs laid in the first seven or eight months in the year generally hatch in two or three weeks, only those of the earliest months remaining much longer, as there would be no food for the young larvæ if they hatched before the buds begun to burst. Eggs laid after August generally remain till spring before they hatch, and may be found during winter. Eggs of many species, that were quite unknown in their earlier stages, have been discovered by watching the female when ovaposition. Butterflies deposit their eggs during bright sunshine, generally, we believe, in the latter part of the day. Some species, such as the large and common Whites (*P. brassicæ* and *rapæ*), the Black-veined (*A. crategi*), the small Tortoise-shell (*V. urticæ*), the Peacock (*V. Io*), &c., deposit a number in one place, generally on the underside of a leaf of the food plant, and the larvæ of such species are always more or less gregarious. Those whose larvæ are solitary only deposit one egg at a time, generally only one on a plant. These are necessarily more difficult to find, but, by watching the females when so en-

gaged, you may soon learn how they are deposited, and they will be much easier found afterwards. The eggs of Butterflies are generally very beautiful objects for the microscope, and but for the difficulty of preserving them, already spoken of, they would no doubt be highly prized for that purpose. An ordinary pocket lens will be of sufficient magnifying power to enable anyone to distinguish the species of butterfly, so soon as he becomes acquainted with the form of the different eggs. They are difficult to describe in words, but if any of our readers during the season, will supply us with carefully made drawings of any of them, or with the eggs themselves, we will have them engraved and published. In the course of time, most of the species might be so obtained, and the series would be of considerable service.

Next week we will speak of the eggs of the Heterocera.

TO CORRESPONDENTS.

H. B. P.—We shall be glad to see your Dulwich list. The more complete you can make it the better.

H. T., Coventry.—We shall be glad to see your Canadian Butterflies.

B. P. O'NEILL, Lee.—1. The animal you send is the larva of some kind of Dipterous insect. 2. It is not unusual for butterflies to grease, though not so subject as moths. 3. Coloured plates sent.

CORRESPONDENCE.

PRESERVING REPTILES.—Sir,—Being in correspondence with a person in Canada who wishes to send me some preserve

Reptiles, but cannot, as they are preserved alcohol, and it would not be safe to send a bottle all that way. Could you tell me if there be any kind of powder in which they could be preserved. — Yours truly, H. THOMPSON.—Coventry, April 15th.

[The bottles may be sent in cases, packed in sawdust, bran, or rotten wood. The only other method we know of is to skin them, and send the dry skins.—EDS.]

EXCHANGE.

I have a few Ova of the dark variety of *Progemmaria (fuscata)*, which I should be glad to distribute to Members of our Exchange Club, on receipt of stamp for postage.—S. L. MOSLEY, Beaumont Park, Huddersfield.

NOTES, CAPTURES, &C.

MOLE TRACKS ON THE SNOW.—After the heavy storms of Tuesday, Jan. 19th, we examined closely the various tracks of birds and animals in the snow. We were surprised to find a great number of tracks of the mole wherever we went, but particularly along the hedgerows. They appeared to have passed their nights running about on top of the snow, instead of in their holes. We should be glad to know, if this is always the case, or whether they only do so in the snow. We have reason to think they are not in the habit of doing so at other times, as we never see them about at night, though often out with a lantern.—R. PRESCOTT DECIE.

THREE CROWS TO ONE NEST.—Having been told by some friends that there was a nest not far off which belonged apparently to three crows, we went on Tuesday, April 12th, to look at it. We saw the nest at the top of an oak tree, and in it two crows were sitting side by side; the third, however, was not to be seen. We went again on Thursday, the 14th, when there was only one bird on the nest. This got off the nest at our approach, cawing loudly. Attracted apparently by this, two others came flying along the dingle and were

joined by the first. The three together flew round over our heads for a short time, when the one which we had first seen went back to the nest, while the other two perched on the nearest tree. We stayed some time longer watching them, but as they did not move we went away, pretty well satisfied that the three crows belonged to the same nest. Can any of your readers give a parallel instance? —R. PRESCOTT DECIE.

CAPTURES ON THE WALLASEY SANDHILLS.—On the 15th inst I had the pleasure, in company with my friend, Mr. Firth, of renewing my acquaintance with *Nyssia leonaria* in its well known "native haunts" on the Cheshire Sandhills. Although I have taken this species on three or four occasions, now more than ten years ago, I do not remember ever to have seen it in such abundance: hundreds might have been collected in a very short time in splendid condition. Female specimens were equally common, many of them depositing their eggs, which, after a little practice, were easily found inside the hollow stems of grass, &c. In addition to *Zonaria*, we also took three or four fine specimens of *T. opima*, one *rubricosa*, two *L. multistrigaria*, and larvæ of *B. rubi* and *A. fuliginosa*.—J. W. CARTER, Bradford, April 18th, 1881.

SWALLOWS BUILDING IN CHIMNEYS.—On page 71, No. 9, of the *Young Naturalist*, I see that Mr. Mosley says that he never saw a swallow enter a chimney. Last week, while talking with my father about them, he told me that one day, when he was at Bubbenhall, a village five miles from here, he was called into a house. The man wanted to show him a nest in the chimney. He looked up, and saw the swallows come in and out of the nest. It was built several feet from the top, and the old birds lowered themselves down to feed the young ones. It was one of those straight chimneys, and they kept a fire burning all day, but did not cook anything, on account of the bits falling from the nest.—H. THOMPSON, Coventry.

DOMESTIC USE OF THE PRIMROSE.—I see Mr. J. P. Soutter says (*Young Naturalist*, p. 159) that "the primrose has never been utilised for any useful purpose." He is evidently quite unaware how extensively it is used in the West Riding of Yorkshire for the making of vinegar. In spring the flowers are gathered in large quantities for this purpose, so much so that in many parts of the district the plant has been all but exterminated, and I venture to say, that anyone who has tasted primrose vinegar will never want any other kind so long as it can be got.—GEO. T. PORRITT.

THE FOUR SEASONS:

A Story from the Book of Nature; by
LUCY FERN.

Chap XII.

WINTER APPEARS.

Autumn had many pleasures; the bright days tempted the inmates to many a ramble along the hill edges in search of the last treasures of the year. The November moth (*C. brumata*) was abundant in the very garden, and Fieldfares and Redwings came to pick the haws from the hawthorn hedge every morning.

One day in the latter half of December, when the wind rustled the withered leaves about the garden, whirling them into heaps, and swaying the leafless ash boughs to and fro, an old man with grey beard presented himself at the door of the rustic cottage and inquired if SPRING did not live there.

"No, indeed, she does not," the visitor was told, "but," continued the informer, "a lady does live here who used to be known by that name, but she changed it for another six months ago."

"Bring her and let me see her," said the old man with the grey beard.

So the message was taken to the lady of the house, who at once came to see who enquired

so anxiously after her. As soon as her eyes fell upon the old man, she ran to him, threw her arms around his neck, and kissed him, exclaiming, "My Father!"

"Father, where have you been all those long months? Who expected to see you here to-day? Why did you not send us word you were coming? It is a long time since I saw you. Do come in and stay with me, and tell me all about it."

SUNSHINE came too, and SHOWER also, who had again joined the party in Autumn, and both caught hold of the old man and dragged rather than led him into the parlour before a cheerful fire.

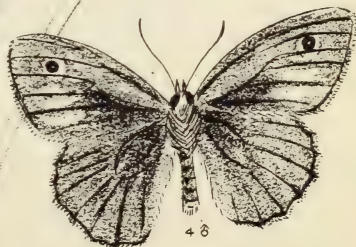
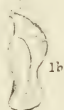
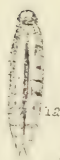
"Tell us, pray, do tell us," said SUNSHINE, where you have been all this while; you promised to let us know how you were going on, but we have never once heard from you, never once. Yes, we are glad to have you with us once again. The company of Spring and Summer and Autumn have been delightful, but we have missed that homely fireside chat which you can always give."

"My dear," said FATHER WINTER, "I have been a very long way: I have been to the Arctic regions, and after a little while I will tell you about my journey. You well know what delight I always take in snow and frost and howling gales, and as it is so long since I heard your sweet voices, I would be glad if SUNSHINE would sing me that old song just once more."

So, repairing to the piano, she at once began.—

Brave Winter and I shall ever agree,
Though a stern and a frowning gaffer is he;
I like to hear him with hail and rain
Come tapping against the window pane:
I like to hear him come marching forth,
Begirt with the icicles of the north;
But I like him best when he comes bedight
In his velvet robes of stainless white,

A cheer for the snow—the drifting snow,—
Smoother and purer than Beauty's brow;
The creature of thought scarce like to tread
On the delicate carpet so richly spread.
With feathery wreath the forest is bound,
And the hills are with glittering diadems
crown'd.



Satyrus Egeria, (1).
 " *Megæra*, (2).
 " *Semele*, (3).
 " *Janira*, (4).



'Tis the fairest scene we can have below—
Sing, welcome, then to the drifting snow.

"That is the sweetest music I have heard for a long time," said the old man, "and how have you spent your time during my absence, I should like to know?"

In answer to this question a long row of cabinet drawers were brought out, one after the other, and held before them. His eyes, though aged, were not dim, and as they fell upon one beautiful insect after another, they fairly glistened with delight, and when he came to a beautiful row of *Plusias* he admitted that though snow and ice were beautiful in their way, yet they were not to compare with the wing of a *Plusia*.

"They are all very beautiful," says he, "but I am for utility; is there any utility about them?"

"Utility?" says his eldest daughter, "I should never have thought of you asking such a question. I should think there is. What can enliven the mind and promote health more than the study of these? If a person has any veneration about him, he is the most devoted who knows most about the works of Nature."

(To be continued.)

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

MEGÆRA. Pl. 14, Fig. 2.

The Wall.

"MEGÆRA, Q., *Megæ'ra*, one of the Furies. Virg. *Æon.* xii, 846."—A.L.

Imago.—Pl. 14, fig. 2. Tawny brown, with dark markings. Forewing with one eyed spot near the tip, hind wing with three similar spots near the hind margin. The male has a dark band on the forewing, running from behind the eyed spot to the middle of the hind margin, which is wanting in the

female.

Larva.—Green, a pale line on each side of the dorsal line, all of which are widest in the middle. Spiracular line white. The divisions of the anal segment are very short, and are pink at the tip; head green. The body is all covered with minute warts, each of which emit a short hair.

Pupa.—Suspended by the tail, rather stout, and humped, green in colour, with a few paler marks.

Food Plant.—Grasses. Seems to prefer the Cocksfoot grass (*Dactylus glomerata*).

Times of Appearance.—The Butterfly appears in May, in which month, or early in June, the eggs are laid singly on the grass stems. The larva is full fed by the middle or end of July, and the species remains nearly a month in the pupa state, the second brood appearing in August. The eggs are laid during this month, and hatch in a few days, the larva feeding during the autumn, and it would almost appear they sometimes pupate before winter. This, however, is not in accordance with the axiom that the same species always passes the winter in the same state, for it is certain that young larvæ of *Megæra* may be found early in spring. Perhaps those that pupate in autumn may emerge then, and possibly, as has been suggested with reference to the last species, in fine seasons these may even pair, and deposit their ova.

Habitat.—Lanes and grassy places. It is generally considered to be of universal occurrence in Britain, except in the extreme north of Scotland, but whatever may have been the case formerly, I know of very extensive districts where it is no longer to be found. When I commenced to collect it was one of our commonest butterflies, but since 1860 I have never seen but a solitary specimen. Dr. Buchanan White, quoted by Mr. Newman, makes the same remark, adding, "The series of cold summers following that year seem to have destroyed the species; though possibly like *Pyrraëis cardui*, it may

again put in an appearance." It is twenty-one years since it disappeared here, and many correspondents write to the same effect from other localities. Still it seems probable that so abundant a species will again spread over those places in which it does not now occur. It is found all over Europe except in the polar regions, in Northern Asia, and Asia Minor, also in the north of Africa.

Variation.—Striking varieties of this butterfly are rare. I have a female with the paler portion of the wings almost white, and a male of similar hue is in the collection of Mr. S. Stevens, but his has four eyed spots on the hind wing, and mine but three. Mr. Stevens has another with the darker portions of both wings quite a pale brown, almost drab. This also has four eyed spots on the hind wing. A more curious variety is in the collection of Mr. F. Bond: the forewing is of the usual type, but has an extra small eyed spot close to the top. The hind wing has the ground color, semi-transparent, with four eyed spots on a fulvous band, and slight fulvous marks nearer the base the wing, where it is generally very dark brown. I also have a specimen with the dark band characteristic of the male, much wider than usual, making the specimen look very dark. Specimens with more than three eyed spots on the hind wing are not uncommon; the underside has generally six or seven, but there are seldom more than four on the upperside. An extra spot with white centre on the fore wing, like Mr. Bond's named above, is often seen, also specimens with an extra eyed spot below the ordinary one. Specimens with the eye bi-pupilled are not very rare. Four varieties are named:—*Lyssa*, Bork, which occurs in the South-east of Europe and in Asia Minor, has the underside of a more uniform ash colour than our specimens. *Tigelius*, Bon., occurring in Corsica and Sardinia, is smaller and paler. The other two—*Megarina*, H. S. and *Adrasta* Hub.—I know nothing of.

Parasites.—None known to me.

"GATHERING SHELLS BY THE SEA SHORE."

We have had a parcel of shells sent us lately for our Exchange Club, that were in such poor condition, we have thought it well to pen a few lines on collecting them, with special reference to Marine Shells. A popular song says—

"Those were the happiest days of all, Maud,
Gathering shells by the sea shore;"

and we know that large numbers of young people, especially those who only visit the sea side for a summer holiday, gather shells in great number, and without much regard to kind or condition. What can be pleasanter than a stroll along the sea beach at the close of a summer day, after the tide has receded? The murmur of the little waves, as they lap upon the shore, is pleasant in its monotony, the long unbroken stretch of golden sand deceiving the eye as to distance; the white-sailed vessels in the distance; the gulls flying to their distant resting-place, with scarcely a flap of their spreading wings; the sun setting in rosy clouds behind the distant high land, if you are on the east coast, or far away over the ocean, leaving a long track of fire on the waves, if you are on the west coast; all is so beautiful and pleasant that it is no wonder such a ramble should be an attractive one. Then the little sea shells that strew the edge of "high water mark" are so different from what are seen in country strolls, that few can help but pick them up and admire; and they are carried away by basketfuls to country homes. But, for scientific purposes, shells thus gathered are comparatively of little use. Gently as they are washed about in summer time, the constant friction against the sand soon rubs them down, and all the finer colouring and more delicate raised parts of the shell are quickly worn away; and in this state it is often difficult to make out the species.

A reference to the articles on Conchology in our last volume will show the beginner, that shells are classified, not by the shells

themselves, but by the animal occupying them. The old division into Bivalves and Univalves is right enough as it happens, but whether the dwellers in these shells have, or have not, a head is what is now looked at in their classification, as by this means those members of the MOLLUSCA that have no shells, can also be properly classified. (See *Young Naturalist*, vol. I, p. 271, &c.) In order to learn something of the inhabitant of the shell it is necessary to get the animal alive, and by so doing, the collector not only gets his shells in much finer condition, but he also learns something of the habits of the various species. Not that we would undervalue promiscuous collecting, but when you learn by getting a few living specimens, what they really are like, you will separate the wheat from the chaff, and pick up only those that are good enough to be worth preserving. Turn to the rocks, then, with their seaweed mantle, and their little pools filled with water, beautifully pelucid. The common Periwinkle (*Littorina littorea*), so much used as an article of food, can bear the heat of a summer's sun for many hours, and is found on the rocks, almost at high water-mark. Other species of the same genus will be found under the bladder wrack (*fucus*) that covers those rocks, left bare every receding tide. In the pools here will be found various species of *Trochus*, or top shells, and whelks of various genera. Still further down may be found on those rocks that are uncovered each tide, but for a shorter period, the common Limpet (*Patella vulgata*). It is astonishing how closely these animals cling to the stone. Select the shell you want, but be careful not to touch it, until, by a sudden and smart jerk, you dislodge it from its place. If you accidentally touch it, or do not succeed in your first attempt, it is no use to try again, for you will not get it off now without injuring the shell. Still further down, at the extreme verge of "low water," may be found the purple-spotted *Trochus* (*T. ziziphinus*), the Rock Murex, and the pretty little Cowry

(*Cypræa Europæa*), almost the only representative of its genus to be found here. On the slimy arms of seaweed floating here may be found the beautiful blue-lined Limpet (*Patella pelucida*). The bright blue lines in the apex of this species are scarcely to be seen on those washed ashore by the tide. Other species must be sought by dredging, when you may obtain other curious Limpets—the Keyhole Limpet (*Fissurella reticulata*), and the Hungarian Bonnet (*Pileopsis Hungaricus*), the Pelican's Foot (*Aporrhais pes-pellicani*), and many others. All named so far are Univalves, and many Bivalves may be found in similar situations. Mussels in large beds above low water-mark, Oysters, Scallops, &c., in deeper water. Cockles, Gapers, Razor Shells, and many others burrow in the sand or mud at about low water, and often at considerable depths. They are easiest obtained alive when a heavy ground swell has shifted the bottom, but they may sometimes be found on the surface, and must be approached cautiously, as they bury themselves very quickly on the slightest alarm, and you will not find it easy to dig them out. Bivalve shells, however, are oftener found uninjured on the beach than Univalves, and we have often gathered even the very delicate pelucid Razor-shell (*Solen pellucidus*) quite perfect. Other Bivalves bore into stone, and must be got out with a hammer and chisel. Our space is already exceeded, but a little practice will soon teach you what we have left unsaid. One more remark, and we have done. If you find it inconvenient to dredge, and perhaps in any case, it will be worth your while to make friends with the fishermen, who often bring deep sea shells to the surface on their lines. We have also sometimes obtained fine specimens by examining the contents of the stomachs of flat fish, who swallow the shell for the sake of the inhabitant. Of course, the process of digestion is as injurious as the action of the sea, but those that have not been long in the stomach of the fish are often quite perfect.

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E. G. MEEK

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Part XVII., MAY, contains:—*Young Naturalist Exchange Club*, 161. *Monthly Botanical Notes*, by J. P. Soutter, 165. *British Butterflies*, 166, 172, 181, 189. *Birds' Nests*, 169. *The Four Seasons*, by Lucy Fern, 171, 180, 188. *The Kite*, 174. *Arranging Birds' Eggs*, 177. *North Staffordshire Naturalists' Field Club*, 179. *Natural History Diary*, by J. W. Carter, 180. *Eggs of Lepidoptera*, 185. "Collecting Shells by the Sea Shore" 190. *Notes, Captures, Correspondence, Exchanges, &c., &c.*

NOTES, CAPTURES, &C.

BOTANICAL DIARY (Continued from No. 75. Page 163). *Wood Anemone* (*Anemone Nemorosa*), in flower, March 26. *Hawthorn* (*Crataegus Oxyacantha*), in leaf March 27th. *Shepherd's Purse* (*Lapsella Bursa-pastoris*) in flower April 5th. *Horse Chestnut* (*Aesculus Hippocastaneum*) in leaf, April 9th. *Sloe* (*Prunus communis*), in flower April 9th. *Pansy* (*Viola tricolor*) in flower April 9th. *Wood Sorrel* (*Oxalis Acetosella*), in flower April 9th. *Marsh Marigold* (*Caltha Palustris*), in flower April 10th. *White Dead Nettle* (*Lamium album*), in flower April 10th. *Cowslip* (*Primula veris*), in flower April 10th. *Dog rose* (*Rosa Canina*), in flower April 12th. *Crab Apple* (*Pyrus Malus*), in leaf April 15th.

Wallcress (*Arabis Thaliana*), in flower April 15th. *Sloe* (*Prunus Communis*) in flower April 15th. *Ladies' Smock* (*Cardamine Pratensis*), in flower April 15th. *Stitchwort* (*Stellaria Holstia*), in flower April 15th. *Cow Parsnip* (*Heracleum Sphacellium*), April 15th. *Lime* (*Tilia Europaea*) in flower April 17th. *Ground Ivy* (*Nepeta Glechoma*), in flower April 17th. *Maple* (*Acer Campestre*), in flower April 17th. *Mountain Ash* (*Pyrus Aucuparia*), in leaf April 20th. *Wild Strawberry* (*Fragaria Vesca*) in flower April 22. *Germander Speedwell* (*Veronica Chamadrys*), in flower April 22nd.—A. DAVIS, Junr., High Street, Great Marlow, Bucks.

[Is our correspondent quite sure that *Rosa canina* was in flower on April 12th.—EDS.]

THE YOUNG NATURALIST.

PUPÆ DIGGING. — This morning I have been out pupæ digging with a friend, and we got over a dozen. Is not that very good for this time of the year?—B. P. O'NEILL, Manon Park, Lee.

GREAT CRESTED GREBE NEAR BRADFORD.—A specimen of the Great Crested Grebe (*Podiceps cristatus*) was picked up alive in an exhausted condition, at Shipley Glen, on the 19 of February last.—J. W. CARTER.

LONG-EARED BAT.—I caught a specimen of the Long-eared Bat on the 18th inst, which measured more than 9 inches from tip to tip of wings, its ears extending to $1\frac{1}{4}$ inches.—H. ANDREWS, Boro' Bridge.

GENERAL NOTES.—A Thrush's nest with 3 eggs was found on March 20th. Small garden white (*Pieris Rapæ*) and green veined white (*Pieris Napi*) seen April 9th. Red Admiral (*V. Atalanta*) seen on April 15th. Swallows seen on April 16th, (last seen Dec. 8th, 1880) and Dor Beetle on the wing. A large Tortoise shell caught (*V. Polychoros*) on April 14th.—A. DAVIS, Junr., High Street, Great Marlow, Bucks.

FOR SALE OR WANTED.

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1. The announcements will be confined to Books on Natural History or Scientific Subjects, Cabinets, Store Boxes, and other Collectors' requirements, either wanted, or to be disposed of.
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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 79.

MAY 7TH, 1881.

VOL. 2.

HOW TO BEGIN.

REARING LEPIDOPTERA FROM THE EGG.

WE propose in this paper to complete what we have to say about finding the egg when deposited in the natural way. The ova of the larger Hawk Moths are, so far as we have seen, large, round and, green, and deposited on the underside of the leaves. They must be looked for on the food plant, and it would be little use searching for ova of such species as the Deaths Head or Convolvulus Hawk, but those of the Poplar Hawk are easily found on Willow or Poplar, as the species is abundant in most places. Where the others of this genus (*Smerinthus*) occur the ova may also be found by careful searching.

Among the Bombyces, the ova of several species are easily obtained. The Vapourers (*Orgyia antiqua* and *mostigma*) have wingless females which deposit their eggs on the outside of the cocoon. These are very noticeable during winter when, the leaves being off the trees and shrubs, the

cocoons are very conspicuous. The gold and brown tails (*L. chrysorrhæa* and *auriflua*) cover their eggs with the fine down off their abdomen, which renders them less easy to observe. The swifts (*Hepialus*) all scatter their eggs loosely over the surface of the ground. They are very small in proportion to others, and when first deposited, we might almost say ejected, they are quite white, but they rapidly turn black. They fall into crevices in the earth, in which the larva burrows, feeding on roots. The Tiger Moths generally deposit their ova in large batches, placed with great regularity. The eggs of *Caja* are green, turning brown before hatching. Those of *Villica* reflect various colours, like Mother of Pearl. The egg of the Drinker may be found on blades of grass, while those of *B. rubi* and *quercus* are often placed at considerable distances from their food, on a post, a stone, &c., often from ten to thirty close together, and other patches not far off. The Puss and Kittens deposit theirs on the upper side of the Poplar or Willow leaves, generally two or three together. Those of *Vinula* are

brown, of *Bifida* and *Furcula* black, *Bicuspis* we never saw.

The eggs of the *Geometræ* are often very beautiful objects, and sometimes are very large in proportion to the size of the perfect insect. Like those of other groups they are deposited in all sorts of situations, loose or attached, singly, or in large or small batches. The eggs of the Mallow Moth (*E. ceruinata*) are scattered loosely in the neighbourhood of the food plant, which dies down in winter, but grows again from the same root the succeeding year. These are small yellow eggs, and the moth appearing quite late in autumn, they do not hatch till spring. Others that pass the winter in this state are deposited in the chinks of bark, at the axils of the leaves, or exposed on the twigs of the food. Those that hatch the same year, are more generally attached to the food itself. Those that feed on the leaf are sometimes on the upper surface, but much more frequently on the under part of the leaf, and when deposited singly, or in small numbers, they are often near the midrib. The eggs of flower feeders, such as the *Eupithecia* are most likely to be found about the sepals, or on the stalk close to the flower head. A knowledge of the habits of the larva will often guide the intelligent egg hunter to the object of his search.

The eggs of the *Noctuæ* are often deposited in large masses on the under side of the leaves of low plants, and though they may often be found when searching for larvæ, they are certainly

not easy to discover, but again a knowledge of the habits of the larvæ will greatly assist in the search. The females of the seed feeding genus *Dianthæcia* have long ovipositors, which enable them to insert their eggs in the capsule of the various species of *Silene* and *Lychnis*, on which their larvæ subsist. If a few of these capsules were gathered and carefully examined at home, the egg would most certainly reward the painstaking entomologist. Other genera with long ovipositors deposit their eggs in the chinks of bark.

This branch of collecting, on which we have scarcely touched, having only named one or two of the commoner species in each genus, has been very little followed, and there are many interesting discoveries to make in reference to the deposition of the egg; the manner in which it is concealed from its enemies, or protected from the cold of winter; the care of some species that their unborn offspring shall find their food without difficulty; the apparent neglect of others to take similar precautions; the instinct by which the female knows the proper kind of food to provide, even when there are no leaves upon it; these, and a thousand and one other matters would make egg hunting both pleasant and profitable. We commend it then to the careful attention of our young friends, and would say, in conclusion, that so very little is known on the subject that all observations are valuable. Search then for eggs, and "when found make a note on," and send it to us for

publication.

Our next paper will be on the best methods of inducing the female to part with her eggs in captivity.

TO CORRESPONDENTS.

J. W. C., and OTHERS.—Plate 17 was coloured free for those who are taking coloured plates.

J. P., Liverpool.—We will attend to your suggestion.

NOTES, CAPTURES, &C.

BOTANICAL DIARY (Continued from No. 75, page 163). Wood Anemone (*Anemone Nemorosa*), in flower, March 26. Hawthorn (*Crataegus Oxyacantha*), in leaf March 27th. Shepherd's Purse (*Lapsella Bursa-pastoris*) in flower April 5th. Horse Chestnut (*Æsculus Hippocastaneum*) in leaf, April 9th. Sloe (*Prunus communis*), in flower April 9th. Pansy (*Viola tricolor*) in flower April 9th. Wood Sorrel (*Oxalis Acetosella*), in flower April 9th. Marsh Marigold (*Caltha Palustris*), in flower April 10th. White Dead Nettle (*Lamium album*), in flower April 10th. Cowslip (*Primula veris*), in flower April 10th. Dog rose (*Rosa Canina*), in flower April 12th. Crab Apple (*Pyrus Malus*), in leaf April 15th. Wallcress (*Arabis Thaliana*), in flower April 15th. Sloe (*Prunus Communis*) in flower April 15th. Ladies' Smock (*Cardamine Pratensis*), in flower April 15th. Stitchwort (*Stellaria Holostea*), in flower April 15th. Cow Parsnip (*Heracleum Sphodyllium*), April 15th. Lime (*Tilia Europæa*) in flower April 17th. Ground Ivy (*Nephrata Glechoma*), in flower April 17th. Maple (*Acer Campêtre*), in flower April 17th. Mountain Ash (*Pyrus Aucuparia*), in leaf April 17th. Wild Strawberry (*Fragaria Vesca*) in flower April 22. Germander Speedwell (*Veronica Chamædrys*), in flower April 22nd.—A.

DAVIS, Junr., High Street, Great Marlow, Bucks.

[Is our correspondent quite sure that *Rosa canina* was in flower on April 12th.—EDS.]

GREAT CRESTED GREBE NEAR BRADFORD.—A specimen of the Great Crested Grebe (*Podiceps cristatus*) was picked up alive in an exhausted condition, at Shipley Glen, on the 19 of February last.—J. W. CARTER.

LONG-EARED BAT.—I caught a specimen of the Long-eared Bat on the 18th inst, which measured more than 9 inches from tip to tip of wings, its ears extending to 1½ inches.—H. ANDREWS, Boro' Bridge.

GENERAL NOTES.—A Thrush's nest with 3 eggs was found on March 20th. Small garden white (*Pieris Rapæ*) and green veined white (*Pieris Napi*) seen April 9th. Red Admiral (*V. Atalanta*) seen on April 15th. Swallows seen on April 16th, (last seen Dec. 8th, 1880) and Dor Beetle on the wing. A large Tortoise shell caught (*T. Polychoros*) on April 14th.—A. DAVIS, Junr., High Street, Great Marlow, Bucks.

ON ARRANGING BIRDS' EGGS IN THE CABINET.

By C. S. GREGSON.

Much interested with the remarks on this subject, *Young Naturalist*, No. 77, Vol. 2, will you please let me say that there are two or three most simple matters in arranging eggs, &c., which seem not to have been noticed by you. First, glass partitions are the most simple, beautiful, and practical of any divisions; bleached white cotton wool is the best of any, because it can be cut exactly to fit each compartment, being more solid, if I may so express it, than the sheets of dyed wools are; and there is one warbler's egg which is pink!

Then again, it is quite a mistake to suppose the eye can be educated up to the nice point required to differentiate eggs by texture, if you have only a short series; form and tex-

ture go very far in forming a technical judge of birds' eggs. Therefore, by all means, let each young oologist keep a good series of each species, common or rare, plain or variable in markings. I am quite sure if I had not done so nobody would have cared a rap for my opinion about an egg. *Form* goes a long way to decide critical species, but texture—that is, the finer or coarser, smoother or more glabrous or duller appearance, as the case may be—will always give a close observer of texture a good and correct idea what the egg really is. Of course, a series may be longer than is even required for this purpose, but I am not inclined to dispute about that. My late friend, J. F., Brockholes, had a large drawer full of Skylarks' eggs, and had not amongst them anything like the wonderful varieties I have in my series of about three dozen. It pleased him, occupied his time, in fact, kept him out of mischief, and did the birds no harm, because it is well known, if a bird's eggs are taken, she immediately prepares another nest, and lays again. I have no time to illustrate fully what I mean by differentiating by texture and form to-night, but will let supper wait until I say the House Sparrow's egg is often seen in collections labelled the Cuckoo (*Cuculus anorus*); in form it is very like the egg of the Cuckoo, and the markings are variable in both; but the *true* oval of the Cuckoo egg, and its more glabrous texture, at once separate it from the irregular oval and duller—*always dull*—egg of the House Sparrow. And now, to hark back to my starting point, to be practical is everything. Glass partitions are made by fixing strips of glass, width to suit size of eggs, the exact length of the drawer, at such distance as may be chosen, say four inches apart, and crossing them by other strips four inches long, cut exact. The last one fixes the whole row, and thus glass boxes are formed, which admit light all round the eggs. A few minutes serves to fill a drawer with these divisions if the strips are cut to size. And now, having got your drawer divided, cut

your cotton wadding to the exact size by a wood or zinc tinplate, and drop the pieces into each compartment. It now only remains to put in the eggs. Since eggs have a tendency to turn hole up, and we wish to avoid that, decide first how many are to go into the first compartment; if two, wet the hole side with your tongue, and lay them exactly where you should wish them to remain, and so with all the others; the spittal will be found in practice just able to hold the eggs fast where you want them now, and they could well be removed without any trouble or injury. The sides of my drawers for eggs, shells, or insects are papered with bright green, and everybody I know likes it so well that as they re-paper they adopt it; and my shell cabinet is divided in rows with strips of dark glass, one-eighth of an inch wide, laid upon the bottom.

BRITISH BIRDS, THEIR NESTS AND EGGS.

By S. L. MOSLEY.

Genus VI.—*Falco*, Linn.

FALCO.—The Latin name for a Falcon.

This genus comprises some noble and beautiful birds, not only remarkable for their beauty of plumage, but also for their daring and courage in pursuit of their prey, hence they were highly valued to train and fly at game. We have four species in Britain, which vary greatly both in colour and size, but our smallest is much larger than some West Indian species, which are not much larger than Sparrows. Two or three species are occasional or accidental visitors to this country; these will be spoken of afterwards.

In this genus the upper mandible is much hooked, strong, and with a notch or tooth on each side. All the species have a dark patch of feathers on each side of the lower jaw; this is sometimes called the moustache. The wings have the second quill feather the

longest, and reach, when closed, nearly to the end of the tail, which is moderately long. The first quill feather is peculiarly narrowed towards the tip.

8. PEREGRINE.

Falco peregrinus Gmel.

Cliff hawk (Devon).

Pelegrim falk (Sweden).

Kappalo haukka (Lapmark).

Duck hawk (America).

PEREGRINUS (L.)—A foreigner, or wanderer.

Size.—Male, length from 15in. to 20in., expanse of wings a little over 3ft.; female, length 19in. to 23in., expanse 3ft. 8in. or 9in.

Plumage.—A fine young female (Pl. 8, lower figure) in my own collection has the forehead yellowish-white; top and sides of head, and a patch on each lower jaw, blackish-brown; back of neck same colour, mottled with yellowish-white; back and wings blackish-brown, each feather slightly margined with lighter colour; tail blackish-brown, with about seven lighter bars, and the tips of the feathers nearly white; throat yellowish-white; breast and under parts the same, with broad longitudinal streaks of blackish-brown. In the adult dress these markings change, and assume a transverse character. The male is much smaller, but otherwise does not differ in colour from the female. The bill of both sexes is horn colour; cere and legs lemon yellow. Eyes dark brown. The upper figure represents an adult male in pursuit of a teal.

IMMATURE birds are redder than adults, especially on the back; the head and neck are whitish tinged with red and shades of brown. The breast or under parts creamy or yellowish white, with *longitudinal* marks of dark brown. The full plumage is not attained until the third or fourth moult. Mr. Hancock says the mature dress is attained the first moult, but this is very doubtful.

THE YOUNG are at first covered with white

down.

VARIETIES seem to be very rare—such as white or pied. One, a male, has been noticed, with the under parts pale salmon colour.

Note.—This species does not often make use of its voice only at the commencement of the breeding season, when it sometimes issues a loud and shrill cry.

Flight.—The ordinary flight of the Peregrine is by rather quick regular flaps of the wings, something after the manner of a pigeon. When pursuing its prey it is exceedingly rapid, the speed being calculated by Montague at the rate of 150 miles an hour. When pursuing its prey it will endeavour to ascend above it, and its victim probably knowing this will endeavour to keep the uppermost, and in this way the two will sometimes tower to such a height as to become almost invisible.

Migration.—In Britain this species has not been observed to be migratory to any very large extent, except perhaps in the South, undoubtedly it generally shifts its quarters after the breeding season is over, but probably only to wander in quest of prey. In America, where the bird is more common, those which breed on the shores of Hudson's Bay, and other northern districts of Canada migrate to New Jersey and Pennsylvania on the approach of winter.

Food.—The food of the Peregrine consists of birds of moderate size, such as grouse, gulls, guillemots, and also hares, rabbits and smaller animals. The Peregrine generally captures its prey by chase, pouncing upon its victim from above with tremendous violence, often killing it at the first blow. It is very fearless and has been known to strike down game before the sportsman's dog. The Peregrine has also been known to come at the report of a gun, and pick up a teal which had been shot, and fly off with it. It even seems so fond of killing its prey that in some cases it must have been done for sport, for it has been seen to strike down rooks and other birds and fly on without stopping to pick them up. In

one instance five partridges were struck down in succession by a single Peregrine. The wing of a Kestrel has been found near the nest of the Peregrine. So daring is this "noble" Falcon that Wolley tells of one which flew from a rock in the Orkneys to attack an eagle, knocking the latter down, but breaking its own wing at the same time. On the northern shores of Canada the Peregrine makes great havoc among the long tailed ducks, which breed there in quantities. It is exciting to watch this Falcon chase some of the quick flying birds, such as the golden plover; doubling and turning, the poor bird using every device in order to evade its pursuer, which never gives up the chase until the bird is exhausted. It will, however, seldom follow a bird into a thicket, and when one finds shelter in this way it is generally so terrified that it will suffer itself to be taken in the hand. In one case a Peregrine was devouring a bird it had caught, and, seeing another it took up the bird it had in one foot, gave chase, and caught the second in the other.

IN CONFINEMENT it should, if possible, be fed upon suitable birds entire. It must not be allowed to run on "short commons," as if any other birds are kept in the same cage they may come to grief. In such a case a female Peregrine has been known to attack and devour her partner, the male bird. They are not difficult to tame if taken from the nest when young. In former days the young birds were kept in a dark place, and without food for a day or two, and then fed by the falconer and taught to know his voice.

Habitat.—This species is still to be found in many parts of Britain, chiefly on the coast, frequenting places where the rocks tower to a great height, but sometimes it is found breeding inland. In some parts of Scotland and Wales it is common, and it breeds in almost all the rocky parts of the coast of Ireland, I have known several specimens killed at Flambro Head, and others in north Yorkshire. The breeding places of

this bird are studded at intervals all over the British Isles. On most of the rocky parts of the coast of Scotland nests may be found; in Sutherland, in many parts of the Highlands, on Bass Rock and St. Kilda. In England nests have been taken from the rugged mountain sides of Cumberland and Westmorland; and also in Upper Swaledale, at Flambro Head, Beechy Head, Isle of Wight, and many parts of the Devon and Cornish coast; in Wales both inland and on the coast about Llandudno, Anglesea &c. The breeding stations in Ireland are numerous, especially at Antrim, where very recently eight or nine nests could be found at no very great distance from each other.

ABROAD it is found over all the rocky districts of Europe, many parts of Asia, North America, North and South Africa, and some parts of South America, as far as the straits of Magellan.

Nest.—The nest is placed on a shelf of some precipice, often in the most inaccessible places. Occasionally it is built in a tall tree, and sometimes the Peregrine will appropriate the nest of some other species, as that of a crow or raven. On the continent the top of a church tower is not unfrequently made use of. When built by the Peregrine it is composed of sticks, lined with coarse grass or fern (inland) or seaweed (on the coast). It breeds early in the spring, and during the time of laying, if one bird be killed, the other will soon find a fresh mate. The attachment of certain birds to their breeding place is well known; the late Mr. Woolley tells of a certain cliff in Lapland which had been known to contain a Falcon's nest from 1436 to 1853. He has also found the nest on the ground.

Eggs.—Three eggs are generally laid, sometimes four. They are burnt seinna red, with darker shades and blotches, a very beautiful egg, something like a large Kestrel, only more or less white.

VARIETIES sometimes occur perfectly white.

BRITISH BUTTERFLIES.

By J. E. ROBSON ; with figures from life by

S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

SEMELE, L., Gray Ling.—(P. 14, Fig. 3.)

"SEMELE, L., *Sem'ele*, the mother of Bacchus. Pind. Ol., II, 18."—A. L.

Imago.—Pl. 14, Fig. 3. Fore wing dull brown, a pale streak near the tip, in which is a white centred black spot; nearer the anal angle is a large pale patch with a similar eyed spot. Hind wing basal portion and hind margin dull brown, the remainder of the hind wing paler, a small eyed spot near the anal angle. The male is smaller and darker than the female, and the edges of the pale patches not so distinct.

Larva.—Pl. 14, Fig. 3a.—Ochreous drab, with darker stripes; dorsal line dark-brown, edged with paler; sub-dorsal line dark-brown, with a white line on each side; between it and the dorsal line is another dark line, the ground colour showing between them. The spiracular line is white, shading off below to pale drab. Spiracles black, head brown, with three lines of darker brown. Mr. Buckler found a larva he had reared from the egg never showed any tendency to bury itself, while another found in May buried itself at once. Those I have had always concealed themselves below the surface during the day.

Pupa.—Pl. 14, Fig. 36.—This insect is remarkable for changing to pupa below the surface of the ground in a slight cocoon, and, like most subterranean pupa, is deep dark-red in colour, and smoother and more regular in shape than its congeners.

Food Plant.—Various grasses; turfey hair grass and early hair grass (*Aira cæspitosa* and *Præcox*), couch grass, marram, &c.

Times of Appearance.—The Imago emerges in the latter part of June or July, the

eggs are deposited singly on the food plant, and hatch in a few days. The larva feeds very slowly in the autumn, and hibernates when quite small. It feeds up in spring, and is not difficult to find at dusk or after dark, as its pale colour contrasts with the grass stems. It is full fed about the middle of June, and remains nearly a month in pupa.

Habitat.—Dry banks and rocky places. The Butterfly invariably, as far as my observation extends, rests on the bare ground whenever it possibly can. I never saw it sit on a flower, nor alight on grass or other vegetation when sporting in the sun. Though local where it occurs, it is generally distributed throughout the country, is found in Ireland, the Isle of Man, and in Scotland, except in the more mountainous districts. It is generally distributed throughout Europe, except in the Polar regions. It is also found in Asia Minor, and in Algeria and Morocco in Africa.

Variation.—*Semele* is not a species of which aberrant forms often occur; indeed, except specimens with one side or one wing of the opposite sex, I have seen none but what may be called local races. Scotch specimens are larger and darker than those from the south of England. Many Irish specimens are much redder than the type, and closely resemble those from Portugal and the north-west corner of Africa. Two forms have been named, *Aristaus*, Bon., which I have not seen, but understand to have the paler portion of the wings yellower than the type. This variety occurs in Corsica and Sardinia. Another, called *Mersina* in Staudinger's Catalogue, is found in Cyprus and in Asia Minor, and has the under-side of the hind wing uniformly grey, instead of being marbled and mottled as in the ordinary type.

Parasites.—Though I have had many of these Butterflies from larvæ, I have not yet reared a parasite, nor have I seen any recorded elsewhere.

THE YOUNG NATURALIST.

E. G. MEEK
NATURALIST,

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 80.

MAY 14TH, 1881.

VOL. 2.

TO OUR READERS.

WE have had several letters lately, some of which urge us to give more notes of captures, and others complain that we don't have enough of them; yet, curious to say, with one exception all these neglect to send us their own notes. In a former article on the subject of "Captures" we suggested several reasons why their publication had dwindled down to records of the capture of rarities only. The main advantage a weekly paper has over a monthly is that the former can give notices of capture, while they are useful to other collectors, and the latter can only do so to a very limited extent. There are some people, of course, who take in a paper to get information, but who never contribute anything to the general fund of knowledge. But there are a much larger number, who are not only willing, but anxious, to give all the information they can to all to whom it will be useful; yet they have got out of the way of recording their captures, and scarcely seem as if they could be got into it again. After we publish an

article like this, several of our correspondents at once take the hint, and for the next week or two we have a fair supply of "Notes," some continue to send whenever they have anything of interest; others send once or twice, and then fall off again—thinking perhaps that their communications are not important enough, or getting back into their old habit of recording nothing. Some, perhaps, are afraid of having their communications rejected, or of sending notes of little or no interest. But whatever the cause may be the demand is considerably greater than the supply. One of our correspondents says, "It is the readers who make the paper," but unfortunately the Editors cannot compel their readers to send their records.

Last year a rather scarce noctua, *Aplecta occulta*, occurred in greater or less numbers almost all over the country. We have no doubt, from information that has reached us from various sources, it was one of those appearances in abnormal numbers that are always occurring with one species or another, and of whose cause we are utterly ignorant. Very few records were made

at the time, but we have little doubt, had every one who took the species sent a note of the fact *at once* for publication, and so caused collectors to look out for the insect, that a very much larger number of captures would have been made, and many a blank in our cabinets filled. There are few collectors, if any, who do not value their own captures more than the specimens they have bought, or obtained by exchange, and what a pleasure it would have been to many to take a fine species like this for the first time. We only cite this as one instance of what might have been done. *Aplecta occulta* is an insect, too, that varies greatly with locality, Scotch specimens being very much darker than those from the South. When such a species occurs in abnormal numbers, and over a wider area than usual, it is interesting to know which form prevails; and we might add to our knowledge of the causes of such appearances if sufficient records were made.

In mentioning this insect, we do not do so, so much because it is scarce, as from the fact, already stated, that had early records of its appearance been made many more specimens would certainly have been obtained; and we want to impress upon our readers that *A. occulta* is not by any means the only species of which their sets are incomplete. We scarcely pretend to know what insects occur everywhere, but there are few indeed that some would not be pleased to take. May we, in conclusion, then, ask again that our readers will send us

much more freely their notes of captures, now that the collecting season is here again. If they will let us be judges as to the interest of their notes, it will certainly be better than not sending them lest they are not of interest enough. Some of our correspondents speak of the pleasant days of the "dear old *Intelligencer*," but they do little to bring those days back again. It is little use continuing a weekly publication, with all its disadvantages, unless the advantages of a weekly issue are obtained. We would, in conclusion, point out the opportunity afforded by our pages of offering ova for exchange. We will endeavour to insert such offers if they reach us on Wednesday morning, though matters of less urgency must be in our hands earlier to ensure publication the same week.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

We have received several enquiries about part 4 of "Birds and Eggs." It has been unavoidably delayed in order to clear up a point in the life history of the Peregrine but it will be in the hands of subscribers before another week.

C. H. M., London.—Thanks for nest and eggs of Red-backed Shrike. They shall be figured, and returned as early as possible.

E. B., Escandœuvres Non.—We shall be glad to have the larvæ of *V. Antiope* in its season. Can you not also send us larvæ of *P. daphnidice*. Your pupæ were duly received, and your box shall be returned shortly with some species that may be useful to you.

JOHN PERL."—Your article is unavoidably crowded out; shall appear next week.

RS. B., Rathowen.—Thanks for your drawing of the nest of the Gold Crest; shall be copied and returned.

G. M., Gateshead.—Thanks for the larva of *A. cratægi*. We would be glad of a few more from any of our correspondents to increase our chance of rearing the species. It is since dead.

EXCHANGE.

Wanted, one or two Ringed Saakes; Lepidoptera or Birds' Eggs in exchange.—S. L. OSLEY, Beaumont Park, Huddersfield.

Bembidium pallidipenne.—I shall be glad to send a pair of this species to any Coleopterist who will send box and return postage.—(Dr.) W. ELLIS, 110, Everton Road, Liverpool.

NOTES, CAPTURES, &C.

PUPÆ DIGGING. — This morning I have been out pupæ digging with a friend, and we have got over a dozen. Is not that very good for this time of the year?—B. P. O'NEILL, Manor Park, Lee.

E. IRRIGUATA IN THE NEW FOREST.—While rambling through the New Forest, with my friend Mr. Carrington, on the 17th April, we each captured a specimen of this rare pug.—J. G. MEEK, 56, Brompton Road, London, W.

HYSSA ZONARIA, &C., AT NEW BRIGHTON.—I can endorse Mr. Carter's statement (page 17, Y. N.) as to the abundance of *Nyssia zonaria* on the Wallasey Sandhills, on Good Friday. Our Liverpool entomologists unanimously declare they have never known them so abundant as this Spring. *Aphodius inguinatus* has also been very abundant on the sandhills, in dung, along with the common *rodromus*, *Conspurcatus*, *fimularius*, *Scybalarius*, and *merdarius*.—JOHN W. ELLIS, 101, Everton Road, Liverpool.

BEMBIDIUM PALLIDIPENNE AT CROSBY.—Having occasion to go to Crosby, on the Lancashire coast, a few miles north of Liverpool, on the afternoon of the 3rd inst., I spent about an hour on the shore among my old friends, *Bembidium pallidipenne*, which I found more abundant than I have ever known them. I took three dozen specimens in about half-an-hour. I have no doubt this species occurs on many parts of our coast, but it is difficult to find unless you know *how*, and that is as far my experience is concerned; by lifting up small pieces of drifted wood and bark, lying at high water mark, and looking on the under side, when this beautiful species will be found (sometimes as many as three on one piece) clinging to the under surface. When exposed to the sun they seem quite dazzled for a few moments, but if once they begin to run it requires a long chase to recapture them. They have a peculiar knack of half burying themselves in the sand, by which means they are easily overlooked.—IBID.

APRIL CAPTURES.—I have taken the following Larvæ and Imago here during April, the *Geometra* and *Noctua* larvæ by night searching. LARVÆ:—*S. tithonus*, plentiful on hedge banks, &c. *Z. filipendula*, abundant in various stages in one locality, but has not yet appeared in some of its usual haunts. *G. caja*, abundant. *Villica*, scarcer. *B. quercus*, plentiful. *O. potatoria*, plentiful. *O. sambucata*, a few on ivy and whitethorn. *R. cratægata*, abundant, all sizes, on whitethorn. *A. prunaria* one, hanging from blackthorn. *C. elingvaria*, plentiful, in all stages, on whitethorn, from which the smaller ones hang; exceedingly variable in colour. *B. repandata*, plentiful, on whitethorn; very variable. *C. obscurata*, fairly plentiful, resting on grass near their food plants, *Poterium sanguisorba* and *Potentilla reptans*. *C. russata*, one. *L. conigera*, fairly plentiful, on grass banks. *Lithargyria*, fairly plentiful, as last. *Littoralis*, abundant one night; hardly any mice, on sedge on the sandhills. *T. fimbria*, a few. *Orbona*, abundant everywhere. *N. brinneæ*,

few, on hedge banks. *Xanthographa*, plentiful. *E. lichenea*, a few, on a dry hedge bank, feeding on *Ananthe crocata*. IMAGINES:—*Io*, *Urtica*, *Egeria*, *Megara*, &c.; *R. cratagata*, *S. illuaria*, *A. badiata*, *Derivata*, *C. ferrugata*, *C. suffumata*, *P. Plecta*, *T. Gothica*, *Rubricosa*, *Instabilis*, *Stabilis*, &c.—MISS HINCHLIFFE, Workington House, Inston, North Devon.

SINGLE PARROT'S LAYING.—A lady friend of mine has a single small green parrot in a cage. Last year it laid three eggs, and this year, between March and April, 4 eggs; unfortunately they are all more or less broken by falling on the bars. I should like to know if it is a common occurrence, as I have never heard of single parrot's laying in this country before.—W. PERCIVALL.

SWALLOWS BUILDING IN CHIMNEYS.—In the chimney connected with my sitting-room in the Inn I was staying at when at Wicken last June, was a swallow's nest (Y. N., Vol. II, p. 187). I had not been long in the room before my attention was arrested by a peculiar twittering in the chimney, and on looking up through the fireplace (in which there was no fire) the nest was most conspicuous, placed against the side, some two yards or so down the chimney. It contained young, and afterwards I often watched the old birds feeding them with the greatest pleasure, as the peculiar hovering way in which they descended to and returned from the nest was most interesting. I should much have liked to see how the young ones got out of the chimney, but did not manage this, although I believe they all left several days before I came away.—GEO. T. PORRITT, Huddersfield, April 27th, 1881.

OUR SUMMER VISITORS.—Swallows were seen on April 16th. I heard the Cuckoo first on April 23rd; it was said to have been heard on the 15th. The Landrail, or Corncrake, I heard on the 30th. Swifts were about in numbers on May 3rd. On May 4th I heard the Nightingale singing most beautifully.—A. DAVIS, Junr., High Street, Great Marlow, Bucks.

BOTANICAL DIARY (Continued from No. 79).—Bluebell (*Scilla nutans*), in flower, April 23rd. Elm (*Ulmus campestris*), in leaf, April 23rd. Ash (*Fraxinus excelsior*), in flower, April 23rd. Beech (*Fagus sylvatica*), in leaf, April 23rd. Wild Cherry (*Prunus crasus*), in flower, April 23rd. Yellow Clover (*Trifolium procumbens*), in flower, April 28th. Yellow Nettle (*Lamium Galeobdolon*), April 28th. Crab Apple (*Pyrus malus*), in flower, April 30th. Sweet Woodruff (*Asperula odorata*) April 30th. Ox-eye Daisy (*Chrysanthemum leucanthemum*), in flower, May 2nd. Asper Poplar (*Populus tremula*), in leaf, May 4. White Poplar (*Populus alba*), in leaf, May 4. Birch (*Betula alba*), in leaf, May 4th. Ash (*Fraxinus excelsior*), in leaf, May 4th. Oak (*Quercus robur*), in flower, May 4th. Birch (*Betula alba*), in flower, May 4th. Arum (*Arum maculatum*), in flower, May 5th. Herb Robert (*Geranium Robertianum*), in flower May 5th.—A. DAVIS, Junr., High Street, Great Marlow, Bucks.

CORRECTION.—In 'Notes, Captures, &c., on page 195, for Dog Rose (*Rosa Canina*), in flower April 12th, read in leaf April 12th. — J. DAVIS, Junr.

NATURAL HISTORY DIARY.

By J. W. CARTER, Bradford.

April.

2nd.—*Anemone nemerosa* in flower.

3rd.—*Ranunculus ficaria*, *Mercurialis perennis*, and *Empetrum nigrum* (Black Crowberry) in flower, the latter abundant on Baldob and Rombalds Moors.—(H. T. S.)

10th.—Gooseberry Sawfly (*Nematis ribesii*) observed flying about in the garden.—(S. L. M.)

13th.—Willow Warbler arrived, Manningham.—(J. F.)

14th.—Willow Warbler, Cuckoo, and Ring Ouzle arrived, the latter common on the moors.—(E. P. P. B.)

- 15th. — *Nyssia zonaria* abundant on the Cheshire sandhills, where it was discovered by Mr. Nicholas Cooke, of Liverpool, in 1832.
- 16th. — Tree Pipit arrived; a pair of Grey Wagtails seen, which were probably breeding in Goit Stock, Bingley. — (E. P. P. B.)
- 20th. — Yellow Wagtail, Redstart, and Sand Martins arrived in the neighbourhood of Wilsden. — (E. P. P. B.)
- 21st. — House Martins flying over the river Aire at Bingley. — (J. A. Butterfield.)
- 24th. — Swallows arrived, Wilsden. — (E. P. P. B.)
- 28th. — Observed at Sowerby Bridge by Mr. James Varley: — Willow Warbler, plentiful; Wood Warbler, 4; Chiffchaff, 2; Pied Flycatcher, 1 male; Redstart, 2; Pied Wagtail, very plentiful; Rays Wagtail, several pairs; Swallow, plentiful; House and Sand Martins, several; Tree Pipit in full song.
- „ *Larentia multistrigaria* out; hybernated specimens of *S. dubitata* seen. — (E. P. P. B.)
- 29th. — *Saturnia carpini* out, Rombalds Moor. — (B. Illingworth.)
- 30th. — Whinchats arrived, Wilsden. — (E. P. P. B.)
- East winds have again prevailed during the month, and all vegetation is backward.

THE FOUR SEASONS:

A Story from the Book of Nature; by
LUCY FERN.

Chap XII.

THE ARCTIC REGIONS.

By the bright cheerful fire and the burning log sat WINTER and the happy family circle.

"You promised," said JOHN, "to tell us something of your travels in Arctic regions."

"Yes, I did," responded FATHER WINTER.

"Well, when I left here last year, I travelled

north; I could not bear the heat of the summer sun, so I sought more congenial climes, and if you had been with me you would have seen me gradually shifting more and more to the north as the heat of the sun increased."

"First, then, suppose yourselves on the top of one of the peaks in Lapland. Out on all sides, as far as the eye can reach, are white peaks, which stretch up like huge piles of silver, standing in bold relief against the darkened sky. Below is a white landscape, with here and there darker portions of pine forests. A few snow-white Ptarmigan are taking short flights from crag to crag; but, otherwise, the picture is one of stillness and beauty,—too grand for me to describe. But a storm is coming on, and to be out in a storm in these northern regions is something wonderful. The horizon darkens, then the snow begins to fall—gently at first, but faster and faster by degrees, until one is not able to see many yards in front. The wind increases in violence, and the snow falls thicker and faster, and it comes in howling gusts enough to blind anyone; and the wind whirls it up into drifts twelve or fifteen feet deep. Then night comes on, the snow-storm ceases, the clear sky is studded with bright stars, and the *Aurora* shines out again from the north, rendering it nearly as light as day. Sometimes we see these *Aurora*, or northern lights as they are called in this country, stretching across the northern heavens, but to see them to advantage one must visit those high northern latitudes. Even in Shetland these lights sometimes shine so brightly that a person may read a newspaper by their aid, and render cheerful their otherwise long and dreary nights.

"Then still further north, say at Spitzbergen, the scene is even more wild, one vast wilderness of snow and ice, with no life but a few Esquimaux clad in their thick fur clothing. They live in huts made from skins, and their whole life is spent in eating, and obtaining food.

Among the bays and sounds and straits of

the far north of America, life is more abundant. Sea birds of all descriptions so numerous that over 100 little auks have been brought down by the discharge of two barrels. Now and then an eagle or a falcon will appear, and sweep down upon some unfortunate victim, and carry it off to some crag to devour. A polar bear, or a white Arctic fox, will now and then put in an appearance, and give variety to the scene. The bear, too, is white, and so is the hare and many other animals, some being white, but changing to black or brown during the breeding season. This whiteness of polar animals is a provision of nature, brought about undoubtedly by the process of natural selection for their protection. Of course the polar bear or the Arctic fox does not require protection, but if they are white they will be better able to steal upon their prey unobserved. Some, like the Peregrine Falcon, do not require this imitative colour, because they can capture their prey by excess of speed, but I need not tell you this; you have probably studied all these questions, and are able to answer them for yourselves. In the seas are huge whales, seals, and walruses; floating on the surface are immense masses of ice, called icebergs, thousands of tons in weight; but even this has its beauty and its utility. Take a piece of snow, and place it under the microscope, and you will find it composed of a great variety of six-rayed figures, or crystals, most beautiful, most regular, and most exact in their structure.

"But time is getting on, we must retire. We, no doubt, all find happiness in our own way; SPRING was happy in the dell gathering the first primroses of the year; as SUMMER she had a partner to share her pleasures and her joys, happily without trouble to mar their pleasure. SUNSHINE and SHOWER has accompanied us all even into AUTUMN. In every person's life there are two sides—the dark and the bright. Nature has only one side, and that is bright, the nearer you approach to her, the more you interrogate her

and question her, the more will you approach her in her brightness, and make life pure, beneficial, and happy."

(To be continued).

BRITISH BUTTERFLIES.

By J. E. ROBSON; with Figures from Life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

JANIRA, L.—Pl. 14, Fig. 4.

"JANIRA, L., Jani'ra, one of the Nereids; or the wife of Capaneus. Cf. *Æsch.* Sept. c. Theb. 440."—A. L.

Imago.—Pl. 14, Fig. 4.—Male, very dark brown, with more or less of a slightly brighter shade towards the hind margin; a black spot with white centre at the tip. Female, rather larger, a bright fulvous patch near the hind margin, extending beyond the eyed spot at the tip, and nearly to the anal angle; through this the veins show darker. Sometimes the fulvous patch extends behind the middle of the wing, but there is always a distinctly darker line across the middle, corresponding with that on the under side.

Larva.—Pl. 14, Fig. 4a.—Apple-green, roughish-looking from warts, which emit short hairs. There is but a faintly darker dorsal line, and even the segments are not very distinctly marked. The anal points are whitish.

Fupa.—Pl. 14, Fig. 46.—Suspended by the tail, but often so slightly that it falls to the ground; apple-green, with brownish spots and stripes. It has short ears, and the wing cases project a little.

Food Plants.—Grasses of various kinds, preferring the soft meadow grasses to the coarser species.

Times of Appearance.—This Butterfly begins to emerge about the end of June, and continues on the wing for some time. Specimens may be seen even in September, and during the greater part of this time the

female may be noticed ovaposition. The eggs are laid singly on the grass blades, and they hatch in about a fortnight. They feed slowly for a short time, and then retire for hibernation. With the warm weather of May it comes from its retreat, and feeds up quickly, being full fed by the end of the month, or early in June. It remains three or four weeks in pupa,

Localities.—One of our most generally distributed Butterflies. It swarms in every lane, meadow, or grassy place, and is common in all parts of the island. It does not, however, occur at any great elevation above the sea. It is found all over Europe, except in the Polar regions, in those portions of Asia bordering on Europe, and in Northern Africa.

Variation.—*Janira* is subject to variation of a very peculiar kind, one or more of the wings often having a patch, a spot presenting quite a bleached appearance, almost as if the colour had been removed artificially. Various suggestions have been made to account for these aberrations, that most generally received being that the discolouration has been caused by the rays of the sun, concentrated by a drop of dew. I cannot see that the explanation is satisfactory for the bleaching is as often on the hind wing as on the fore wing, and as the one covers the other in the pupa case, the hind wing could not be bleached from this cause, without that part of the fore wing above it also being affected. Besides, if a dewdrop could thus concentrate the rays of the sun, like a burning glass, the pupa-case would be first affected, and the insect so injured as not to be likely to emerge. I have seen no other species marked in the same way, except one specimen of *Erebia Ethiops* (*Blandina*) in my own collection, which has the left hind wing so affected. Mr. Vaughan has one of these bleached specimens, which is equally marked on both sides, and on all four wings. It was taken at Chattenden in 1877. Mr. Tugwell has a very remarkable example with the right fore wing quite white,

except the eye, and a few yellowish streaks near the middle. The hind wing, on the same side, has a yellowish white band, corresponding with the pale band of the underside. The wings on the opposite side are very different, the fore wing being marked more like the ordinary female, but yellow instead of fulvous, while the hind wing resembles that on the right side, but the band is yellow instead of white. Another very extraordinary form is in the collection of Mr. C. A. Briggs. It has the wings all a very pale brownish drab, except a small irregular fulvous patch surrounding the eyed spot near the tip of the fore wings. This was taken at Folkestone in 1877. Many other very curious abnormal forms might be described, did space permit. Dr. Staudinger names two varieties *Hispulla*, Hb., which is a large richly coloured form, occurring in the South of Europe, and in Africa. The finest I have seen was taken at Morocco, and expands nearly two inches and a half; the black spot at the tip is very large, the light markings of a deep orange tawny, and the veins are broadly darker; the hind wing has a distinct tawny band. The second is *Telmessia*, 3, occurring in Asia Minor and Bulgaria, and which is described as "minor, dilutior." Kirby names four varieties: *Briggitta*, Ljungh, *Pallexens* Butler, *Hispulla* (already spoken of) and *Janirula*, Esp.: I know none of these forms. Linné gave a different name to the sexes of this insects, believing them to be distinct species: he called the male *Janira*, and the female *Jurtina*. Kirby adopts the latter as the name of the species, but *Janira* is more generally used, and, so far as I know, the name of the male has been adopted as the name of the species in other cases where a like error has been made.

Parasites.—*Ichneumon raptorius* is stated to have been bred from this species by Harnack. See *Entom.*, XIII, 302. The larva of *Janira* is easily found at dusk, and should be looked for now when, no doubt others would be obtained.

THE YOUNG NATURALIST.

E. G. MEEK

NATURALIST,

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 81.

MAY 21st. 1881.

VOL. 2.

NOMENCLATURE.

Fifth Paper.

VARIETIES.

OUR previous papers on this subject have had reference to the names of species only. There are one or two side issues, as they may be called, of which some notice should be taken. The most important is the naming of varieties. It has frequently happened that when a well marked variety has been first taken, it has been thought to be a distinct species. This was an error that collectors were more likely to commit in the earlier days of the science than they are now. There are many species of which such varieties occur with considerable regularity. These, especially when they were found in one place and not in another, were almost always considered distinct, particularly if the type did not occur with them. As a natural result they were given a name intended to be the name of the supposed new species. As an illustration we may refer to the little butterfly, known as *Lycæna Artaxerxes*, the Scotch White-spot; when this was

first found, no one, we dare say, doubted its distinctness. It had two well marked characteristics, a white spot on the centre of the fore wing, where *Medon* (*Agestis*) had a black one, and the white spots on the under side were without the black centres that were always found in its near neighbour. As specimens began to increase in cabinets, slight variations were noticed both in *Medon* and *Artaxerxes*, and eventually an intermediate form was found, which was called *Salmacis*. Then some shrewd observer called attention to the fact that *Medon* occurred in the south and *Artaxerxes* in the north, and *Salmacis* in localities between the two. Doubts were expressed, *Salmacis* did not appear in our list as a species, and *Artaxerxes* got a ? after its name. Eventually Mr. Buckler bred all three, *Artaxerxes* from Scotch larvæ, *Medon* from South of England larvæ, and all three forms together from larvæ from one locality in the north of England. Thus *Artaxerxes* drops out of the list of species, and becomes a variety. We have enlarged on this case that our younger readers may understand the process by

which an insect is first looked upon as a "good species," and then falls to the lower rank. A question is sometimes asked—which is the species, and which is the variety? In this case the answer is easy. *Medon*, or, as it was long called in England, *Agestis*, was named first; and without any reference to which is really the type, and which the diverging form, the distinction is all that is required. The species is called *Medon*, and the form it assumes in Scotland is "*Medon*, var. *Artaxerxes*." There are many other insects that have varieties formerly believed to be distinct species, but that are now known only to be local forms, or specimens of occasional occurrence. Such are *C. Suffumata*, var. *piceata*, *X. rurea*, var. *combusta*, *H. velleda*, var. *carnus*, and many others. On the other hand there are a few cases, where what was supposed to be a variety, is now raised to specific rank, as *Eupethecia subfulvata*, formerly believed to be a variety of *succenturiata*, but now known to be distinct and having a variety (*cognata*) of its own. It sometimes happened that a solitary specimen peculiarly marked was named and described as a new species, and though this may have sometimes been done in the belief that a new species was discovered; names have often been given when the specimen was known to be quite abnormal, not likely to occur again, or at any rate not often. Dr. Staudinger in the last edition of his catalogue attempts to distinguish between two classes of varieties, and it

would be well if such distinctions were recognized. Those forms that occur with some degree of regularity, either with the type or by themselves in certain places, he calls varieties. These should always have names, and we believe that when their names are properly understood and in general use, they will greatly assist us in our studies. Such specimens as vary in a recognizable manner from the type, but of which single specimens only are found, are called aberrations. An abnormal form does not appear to deserve a distinctive name. It can serve no good end, help no one to a better understanding of the species, or do anything else beyond gratifying the vanity of the writer who adds his own name after that suggested. A third class of departures from the type might be called monstrosities. Such specimens as have one side differing from the other, hermaphrodites, imagines with the head of the larva, &c., would belong to this class. These, in our opinion, should never be named. We would also distinguish by distinctive names the first and second generation when they differ in even a slight degree, if such difference be constant. One advantage that would result, if some system were adopted in naming varieties, is that collectors could endeavour to have a series, or at least representations of all named forms, but when a name is given to a unique variety, it is no use leaving a blank for it, as only one person can have the specimen.

NOTES, CAPTURES, &C.

ENTOMOLOGICAL PINS.—I have just seen the correspondence in the *Young Naturalist* concerning my Black Pins. Messrs. Gregson and Mathew appear to have found them a failure, while nearly all the principal entomologists in England have found them a success. I may say that during the last three seasons I have sold over eight hundred ounces, and have only heard of one case of verdigris. I, myself, have some thousands of Fen Insects (*Mucronellus*, *Phyragmortellus*, *Gigantellus*, *Forficellus*, and many of the *Eupicilia*) captured in 1878 and '79, pinned on my black pins, and in only *one* case have I traced verdigrease, and upon carefully removing the specimen I saw that one side of the pin was *not* enamelled, which was caused, no doubt, by two pins being stuck together, and when separated left one minus the japan. I have shown my boxes of Fen Insects to many entomologists, and they all say they are all that can be desired, and congratulate me upon having hit upon a process to obviate this everlasting annoyance.—E. G. MEEK, 56, Brompton Road, London, S.W.

B. PARTHENIAS, &C., AT WEST WICKHAM.—This season has already been remarkable for the appearance of some insects. *B. parthenias* has been unusually plentiful at West Wickham, as many as sixteen having been netted in a day by one young collector, with a short net. Several older entomologists took them still more freely. *T. crepuscularia* was also tolerably plentiful in April on the tree trunks, the commoner species *T. biundularia* being hardly out yet. A large number of *C. villica* larva have been found at Wormwood Scrubs and Hendon. On the other hand, *A. pictaria* and *P. hippocastanaria* are not nearly so abundant as usual.—JOHN HENDERSON, 150, Graham Road, Dalston. May 10th.

THE NIGHTINGALE.—I have noticed an unusual number of nightingales this season, some of them in remarkably fine voice. The first I heard was on Epping Forest, May 1st, but on the evening of May 7th, at Combe-

hurst and Shirley, near Croydon, many were in full song. The next morning, May 8th, I heard them at Chingford, and other parts of Epping Forest, very frequently, and in Richmond Park, the same evening, several attracted my notice.—JOHN HENDERSON. May 10th.

NOTES ON LARVÆ OF APORIA CRATEGI.—I send you a few notes on some larvæ of *A. crategi* which I have had lately, which may be of interest to yourself or readers of *Young Naturalist*. The larvæ, which were nearly full-fed when I received them, were very sluggish, and were generally to be seen stretched side by side, and all packed closely together on a twig of their food, hawthorn. When they had stripped it of its buds they moved to another, and repeated the process on it. They ate very slowly, and preferred the buds on the point of opening to those already expanded. When about to change to pupæ, they all, with one or two exceptions, fixed themselves to the sides of the box in a vertical position, their heads pointing upwards. The two above-named underwent their transformation on a twig. One, which I saw cast off its larval skin, owing to its great exertions, slipped its head through its silken belt, and hung suspended by its tail only. I assisted it back to its natural position with a camel hair pencil, which was no easy matter, as it testified its annoyance by wriggling and twisting in all ways. They were mostly from four to six days between suspending and casting their larval skin, although one took seven days. The first changed to pupa on May 5th.—G. T. MILLER, Gateshead-on-Tyne.

PRIMROSES.—While gathering Primroses (*Primula vulgaris*) last year, a pink primrose was found resembling those grown in gardens, and whilst doing the same this year a pure white one was found (except a yellow centre). They were both gathered in a wood upon a chalky soil. Are these varieties common, and are there names for them?—A. DAVIS, Junr., High Street, Great Marlow, Bucks.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

A. D., Marlow.—We are surprised you did not get the plates, they were issued along with the cover on April 30th. If you will send a penny stamp we will send you them.

EXCHANGES.

I have some specimens of the Viviparous Lizard (*Zootoca vivipara*) alive. I would be glad to exchange them for Birds' Eggs.—J. C. CAMBRIDGE, Alliance St., Hartlepool.

XYLOCAMPA LITHORIZA.—Young larvæ of this species in exchange for other larvæ. Devon specimens of *lithoriza* are more suffused with pink than those from other localities.—G. F. MATHEW, Instow, North Devon.

OUR BRITISH REPTILES.

By S. L. MOSLEY.

The Reptiles of this country do not seem to have commanded their proper share of attention from naturalists, although they are both interesting, and beautiful, and not numerous in point of species. But there is a popular superstitious dread of anything approaching the form of a Snake or a Lizard; still I believe that superstition is dying out, and that belief was strengthened when one evening I saw a young lady take up a ringed snake, and put it round her neck. Nothing is more graceful, and certainly nothing is more useful in a fernery or wardian case, than one or two Snakes, Lizards, or Toads, and if looked at without prejudice all must admit they are beautiful animals. People have a notion that they are venomous, but this notion is unfounded: *only one*—the adder—being endowed with poison fangs.

Reptiles are cold-blooded animals, and, therefore, feel rather peculiar when handled; but this ought not to deter people from making their acquaintance: fish are cold-blooded, and almost every person is fond of an aquarium. Another peculiarity in Rep-

tile life is the habit of casting their skins at intervals. The skin is smooth, as in the Frog; or covered with scales, as in the Snake and Lizard; or with warts, as in the Toad, &c.

Of the Lizards we have only three, or, perhaps, four native species, three of which are tolerably common.

THE COMMON SCALY LIZARD (*Zootoca vivipara*) is the smallest species we have, measuring from five to six inches in length. It frequents heaths and dry places in both England and Scotland, and, I believe, Ireland also. I have caught it on the dry hill-sides in Upper Swaledale. The general colour is brown, with darker lines above, and the tail is very long in proportion to the body. If caught by the tail, it throws that member off, and escapes. The discarded tail will twist and move for a considerable time. A new tail is very soon grown.

THE SAND LIZARD (*Lacerta agilis*) is, perhaps, a more beautiful animal than the last, though not so elegant and slender in form. The colour is sandy, with darker spots and lighter stripes, tinted with brownish or greenish. It measures from seven to nine inches in length, and frequents sandy districts. I have often caught it on the sandhills near Southport, but could never succeed in keeping one alive for any length of time.

There seems to be some doubt as to whether the GREEN LIZARD (*Lacerta viridis*) is really a native of Britain. It measures from twelve to fifteen inches in length, and the general colour is different shades of green and yellow. We should be glad to hear if any of our country friends know anything of such an animal.

THE BLINDWORM (*Anguis fragilis*) is the connecting link between the Lizards and Snakes, approaching the latter in external form, but resembling the former in internal structure. It is said to be common in many parts of England and Scotland, but I have never had the good fortune to find it. It seems to vary in length, but the majority are from 10 inches to a foot; the upper part of

the body is brownish, with steel-blue reflections.

The Snakes are represented in Britain by two species. THE COMMON OR RINGED SNAKE (*Tropidonotus natrix*) has been already spoken of at some length (Y. N., Vol. I, p. 203). It may be at once distinguished from the viper by the absence of the dark dorsal line, and by its having two pale yellow marks behind the head, forming a sort of ring. The general tint is a kind of olive-brown, with a series of dark spots along each side of the back. It varies from two to three feet in length, but specimens have been obtained even longer than that. I have found this species at Askern, in Yorkshire, gliding along the edges of the quiet streams.

THE ADDER, OR VIPER (*Pelias Berus*) is generally yellower than the Common Snake: the ring behind the head is wanting, and there is a dark irregular stripe along the back. At Sherwood Forest this reptile is very common, but all you see of it is now and then the tail just retreating into the grass, or a slough or cast-off skin among the grass or heather. This is the only venomous kind we have in England; all the others—both Snakes and Lizards—are quite harmless.

We now come to the Newts, of which we have three or four species. THE GREAT WATER NEWT (*Triton cristatus*) is the largest, measuring five or six inches when full-grown. During the breeding season the male has a crest, which runs along the back and tail; the upper parts are dark olive-brown, and the belly golden. At this season he is really a beautiful animal, and well worthy a place in any aquarium. It is not rare, and if it cannot be caught it may be obtained from most dealers in aquaria.

THE SMOOTH NEWT (*Lophinus punctatus*) seems to be more terrestrial in its habits than the last. It is the common "ask" of country people, seldom exceeding three and a half inches in length. The female is of a dirty yellow, sometimes spotted with darker colour, the male often very much so. The

belly of the male during the breeding season attains a golden colour, at which time it may be found in ponds and stagnant pools, and at other times in hedge bottoms, and occasionally one will find its way into a cellar, much to the horror of the owners, who generally use a pair of tongs for the poor animals removal, and, sometimes even cruelly consign it to the fire.

THE PALMATE NEWT (*L. palmatus*) is, perhaps, only a variety of the last; it differs in having the hind feet webbed in the male; it is smaller and darker in colour, and the belly is said to be paler than the common species.

GREY'S BANDED NEWT (*Ommatotriton vittatus*) is the only one other species which has been met with in Britain, and that only once near London. The specimens are in the British Museum, and are described as being pale grey, closely black-spotted; tail nearly black; sides of abdomen and middle of tail with a broad wide (white?) streak, white beneath.—Grey.

Of course every one is so well acquainted with the COMMON FROG (*Rana temporaria*) that no description need be given.

THE EDIBLE FROG (*R. esculenta*) has been found in Norfolk, but probably from imported specimens. The Edible Frog is said to be without the dark stripe which in the common species extends from the eye to the shoulder. The male has also a sac on each side of the mouth, which are extended while croaking, and a light line along the back.

THE COMMON TOAD (*Bufo vulgaris*) is well-known. It is a most useful animal, though generally despised. Its only means of defence seems to be in a milky secretion, which issues from the warts on its back, and which renders it disagreeable to other animals. This secretion is of a poisonous nature, proving fatal if injected into the veins of other animals.

THE NATTERJACK (*B. calamita*) is less common, it is a more beautiful and more lively creature, walking or even running with apparently with much greater ease. It is com-

mon on the sandhills all along the Lancashire coast, where I have often sat at night listening to their united concerts. In colour it is brighter than the common species, and a bright yellow line runs along the centre of the back.

Besides these, two turtles, the Hawks bill (*Chelonia imbricata*) and the Leathery (*Sphargis coriacea*) have on one or two occasions found their way to our coast, and have therefore been included in works on British Reptiles, but it is mere accident that they have paid us a visit, and probably driven by currents against their will.

It will be seen by this that the true natives are only few—some ten or eleven species, a moderate sized fern case would hold them all. The descriptions have of necessity been very brief, but I hope it will be sufficient to cause some, if not to study, at any rate to respect this much despised class of animals.

OUR PRIZE ESSAYS.

[We print to-day a paper by an old friend, "John Peel," in response to our offer of a prize for the best LIFE HISTORY of one of the BRITISH MAMMALS. Next week we will print a second paper, and we shall then be pleased to have our readers opinions on their respective merits.—EDS.]

THE COMMON HARE.

(*Lepus timidus*.)

By JOHN PEEL.

We think it will be unnecessary to give a detailed description of the hare, as the appearance of this pretty animal, alive or dead, must be familiar to everyone. Its general length is about two feet, the weight from seven to ten lbs. The colour is reddish-brown, varying a little according to the soil on which it lives. The chin and belly are white.

The Hare is naturally timid and solitary,

making for itself a form, either in a cover, thick grass, or on arable land, only seeking another home, when necessary to secure undisturbed quiet. It shows great caution in returning to its form at night, never going straight in, but running round it several times, and dodging backwards and forwards in order to baffle the scent, approaching at last by means of two or three great jumps. Hares feed in the early morning, and also in the evening, and are seldom seen in the daytime, except when disturbed.

Maunder says "that Hthe are is a very prolific animal, breeding several times a year, and producing three or four young at a birth," but in this cold climate we think they only have two litters in the year. The young are able to see as soon as born, and also to run a little, "though during the first fifteen or twenty days through which they are suckled by the mother," they hardly leave the form in which they have been placed, and for this time they are exposed to all kinds of dangers from weasles, stoats, crows, hawks, and many other foes; many living and dead have been brought us in triumph by our dogs. In some cases the mother will come to the help of her offspring when it is attacked, as in the instance of the hare and the kestrel, given in Stanley's Birds," but this we fancy is very uncommon.

Hares are particularly partial to young corn, though as they travel over a large space of ground, only nibbling a bit here and there, the damage they do to the farmers is almost entirely confined to the paths which they make through the corn. They will also eat a variety of other green stuffs, being especially fond of sow thistle, parsley and lettuce, though these two latter, of course, they are seldom fortunate enough to obtain. Hares do considerable damage by eating the leaves and bark of young trees. We remarked a young ash-bed the other day, in which quite three-quarters of the saplings were killed simply by the nibbling of hares and rabbits. They do not as a rule touch alder trees, ex-

cept in frost or snow, when we have noticed a holly, fully a foot in diameter, very much gnawed, and from the height of the mark above the snow, we judged that the bark of the tree had been nibbled by hares, and not rabbits. It is usually believed that hares are very fond of Laburnum, and will eat the bark, if obtainable, in preference to that of any other tree, so we planted a great number in the shrubberies, hoping to keep the hares from the more valuable young trees and shrubs. In this, however, we were quite unsuccessful, for the Laburnums were almost the only trees they never touched.

The Hare has very slight powers of self-defence, and it is besides so exceedingly timid, that it very seldom uses those it possesses. When fighting with another of its kind it strikes with the hind foot, with which it can inflict a severe wound. In play they will often have regular boxing matches, at these times using only their fore feet for hitting. Hares will not feed with rabbits, but will leave the ground frequented by the weaker animal.

The eyes of the Hare are so placed, that it can see very well at the side, and also pretty well behind, though straight in front the vision appears imperfect. This will account for the manner in which a hare runs straight towards a sportsman or other person, when standing still, even striking against their legs, unless diverted from its course by some movement. One of us leaning over a gate by a cover, was surprised to see a leveret come up and gnaw the wood of the gate. The Hare is a very keen-scented animal, and we have often seen one following the trail of another some time after the first had passed. Their ears are lengthened, and formed to catch the slightest sound, warning them of the approach of danger.

The Hare makes use of many ingenious devices when frightened, and always, if possible, runs up-hill, for here the length of its hind legs gives it a great advantage over its pursuers. We have had especially good

opportunities of observing its stratagems when hunted, having kept a pack of beagles for two seasons. We have seen one when hard pressed box another up out of her form, and lying down in it herself leave the fresh one to be chased in her place. When dead beat they will take refuge in any available place; our hounds hunted one into a dairy, greatly to the amusement of the farmer and his wife, and we saw another try to evade pursuit by squeezing into a rabbit hole, an attempt in which, of course, she was unsuccessful. When the scent is bad they will often perplex both hounds and huntsman by running back on their own tracks, and suddenly jumping aside and lying concealed in the grass, where they will wait till the hounds have gone by. When lying on ploughed land they will trust entirely to their colour as a means of concealment, and almost allow themselves to be trodden upon before running away. When in pain the hare utters a cry almost like that of an infant, but at other times we have never heard any sound escape them. Hares seem rather to enjoy being hunted by puppies, whose pace they have tried, and from whose pursuit they know there is no danger. One in particular we used to see hunted every morning by a couple of foxhound puppies, reared by us a few years ago. She would run up the lawn, and then sit down and wait till the puppies had nearly caught her, and then running on, would resume her seat a little further away.

The Hare possesses great jumping powers in comparison with other animals, but never uses them except when pursued by greyhounds, and then only when actually in danger. It is a short-lived animal, the natural term of its existence being about seven or eight years; but Cowper, who, as everyone knows, kept Hares as pets, records an instance of one of his which lived to the age of twelve years.

N.B.—The sentences between inverted commas are quotations from Maunders's *Treasury of Natural History*.

THE YOUNG NATURALIST.

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NATURALIST,

56, BROMPTON ROAD, LONDON, S.W.

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The Young Naturalist:

AN ILLUSTRATED

Penny Weekly Magazine of Natural History.

CONDUCTED BY

J. E. ROBSON AND S. L. MOSLEY.

Part XVIII., JUNE (issued May 28) contains:—How to Begin Rearing Lepidoptera from the Egg, 193. Arranging Birds' Eggs in the Cabinet, by C. S. Gregson, 195. The Peregrine, 196. British Butterflies, 199, 203. To our Readers, 201. Natural History Diary, by J. W. Carter, 204. The Four Seasons, by Lucy Fern, 205. Nomenclature, fifth paper, 211. Our British Reptiles, by S. L. Mosley, 212. Our Prize Essays; The Hare, by "John Peel," 214. Notes, Captures, Exchanges, Correspondence, &c.

This number contains plates 18 and 19.

NOTES, CAPTURES, &C.

A. ALNI BRED.—I bred a glorious *alni* from larvæ found in the New Forest, on the 15th, and another on the 18th, a pretty specimen but small. Five *C. olearis* were in my breeding cage at the same time. Very few Butterflies have hitherto been on the wing, doubtless owing to the cold weather which has prevailed so long.—JOSEPH ANDERSON, junr., Chichester. May, 19th.

LARVÆ OF ORGYIA FASCELINA.—The larvæ of this species seems to be more than usually abundant with us this spring. On the afternoon of the 19th inst., I took about 30 specimens most of them nearly full fed, on

the Crosby sandhills, on the contrary the larvæ of *Arctia caja*, which generally swarm in the same place, seem to be rare.—DR. JOHN W. ELLIS, 101, Everton Road, Liverpool.

REARING *O. POTATORIA*.—In answer to Mr. R. Brown's enquiry in the Y. N. of April 16th, as to what plant I mean by the common Reed, I mean *Arundo Phragmites*. If Mr Brown will turn to Newman's History of British Moths, he will see the common Reed is mentioned there several times see, *M. Arundinis*, *S. Maritima*, *C. Phragmitidis*, and others. I thought every one knew the plant, or I would have given the Latin name in the first instance. I shall be pleased to send some cocoons of *O. potatoria* fed and spun on

the common Reed when the proper time arrives. The males are usually darker than those taken at large.—F. KERRY, Harwich.

OSPREY AT HUDDERSFIELD.—I have just seen a fine male Osprey, recently killed in this neighbourhood by a game keeper. The bird is in the possession of Mr. James Varley, and measured five feet from tip to tip of wings.—S. L. MOSLEY, Huddersfield.

VARIETY OF THE ROOK.—I have lately had submitted for my opinion a pair of young Rooks in a very interesting state of plumage. They are the property of the Rev. G. D. Armitage, and were sent to my father for re-stuffing as "young Hooded Crows, bred in a rookery." They are about three parts grown, and are black with the extremity of each feather barred with grey, which gives them a mottled appearance. The ends of the wing and tail feathers are also barred. Mr. John Hancock figures a similar variety in his "Birds of Northumberland and Durham," and calls attention to the fact that this mottled appearance is a characteristic of the young of a great many of the Passerine birds. Another instance of a similar variety is mentioned by Yarrell, and another by Degland and Gerbe in their "Ornithologie Europeenne." In all these cases the birds were young birds and the mottled appearance would probably have disappeared if the birds had lived to moult. The one mentioned by Yarrell changed on moulting to an ordinary Rook.—S. L. MOSLEY.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

J. J., Hull.—Your beetle is *Dorcus parallelipipedus*.

ERRATUM.

In the article on "The Hare," by "John Peel," for "They do not as a rule touch *alder* trees," &c., read "older trees."

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No. 82.

JUNE 4TH. 1881.

VOL. 2.

OBTAINING EGGS FROM LEPIDOPTERA.

THERE are many species of Lepidoptera that will deposit their eggs, if possible, even under the most disadvantageous circumstances. If a virgin female of *B. rubi* or *Quercus* be put in the killing jar almost immediately after emergence, she will commence to lay, and, no matter how strong the poison, she will manage to deposit a few eggs. If, however, she be kept alive, she will not begin to do so for several days, and will often die before she has parted with all of them. How strong, then, must be the instinct that teaches her, as it were, in the agonies of dissolution to make this futile effort to perpetuate her race. This may well be called "the ruling passion strong in death." But there are others that require a great amount of coaxing and attention to induce them to part with their eggs, and it is too frequently the case that the eggs of the rarer species are the more difficult to obtain. With captured specimens it is, of course, impossible to know whether the ova are impregnated or

not, and many a good insect is sacrificed in the vain hope of obtaining fertile ova. We would advise, except where there are special reasons for desiring to rear the species, such as it not having been reared before, that when captured females are in very fine condition, they be killed and set. If, on the other hand, they are so much worn as to be useless for the cabinet, there can be no reason why every effort should not be made to induce them to deposit their eggs. What we have to say on the subject of obtaining eggs had better be said under each group.

BUTTERFLIES.—Few of the Butterflies will pair in confinement. We have seen the large and common whites do so in a window, and once saw the large white (*P. brassicæ*) pair in the evening in a room well lighted with gas. They were bred specimens, and had been kept in the dark. Butterflies are difficult to induce to deposit their eggs. They are used to fly freely in the bright sunshine from one plant to another, and most of them deposit their eggs singly. These conditions must be imitated if success would be assured. We have seen

them kept in a glass-covered breeding cage, with perforated zinc sides, but they appear to beat themselves very much against glass, which does not afford them a secure foothold. We have tried with some success a large bag of green lino tied over the top of a flowerpot, and kept open by bent wires, which were secured in the flowerpot. Portions of the food plant were passed through the hole at the bottom into a vessel of water to keep them fresh, or with grass feeders, a sod was placed in the flowerpot, and watered. We never succeeded in obtaining eggs of the hibernated *Vanessida*, but Mrs. Hutchinson appears to have been wonderfully successful with *G. C-album* (see page 124). We once had *Phleas* which laid some eggs in a chip box, but as a rule it will be found that sun, air, space, and the food plant are all needed. Except those whose larvæ feed in company, Butterflies do not deposit many eggs in one day: it is therefore necessary to supply them with food, which may be done by inserting a small piece of sponge moistened with honey and water, which must be often renewed.

SPHINGES.—Some of the Hawk Moths part with their eggs freely enough. The beginner had better practise with *S. populi*. This species and others may be paired in confinement, or, if a virgin female be taken out, the males will “assemble” to pay court to her. Hybrids between *populi* and *occellatus* have been obtained both by pairing them in confinement, and by the male

of one species coming to the female of the other when taken out to attract males of her own species. Those that fly by day in the sun, such as the Humming Bird Hawk (*M. stellatarum*), &c., will need to be treated like the Butterflies, if, indeed, eggs can be obtained at all. *Stellatarum* deposits her ova, as she takes her food, while on the wing; and she flies so quickly, and so far, that we doubt if she could be induced to lay in confinement. If it has been done we should be pleased to hear particulars. Some Sphinges, such as *Atropos* and *Convolvuli*, probably hibernate before they lay, but we are not aware any success has resulted from attempts to pair and hibernate them.

BOMBYCES.—Most of the Bombyces pair and deposit their eggs very readily in confinement, hence there are far more bred specimens of this group in our collections than of others. Some few fly in the sunshine, but most of these do not deposit their eggs till night; therefore the admission of the sun's rays does not seem necessary. There are one or two—the day-flying Hook-tips, for instance—where this can be done with advantage. This group is composed principally of tongueless insects, but the *Lithosida* and others will partake of sweets, and to them the sponge named above may be introduced with advantage.

GEOMETRÆ.—Many *Geometræ* will lay their eggs in the ordinary chip box, but some of them have different habits to others, and will thrust them into any

little interstice, or take advantage of an unevenness of the surface: others will lay more freely on a softer substance, as a piece of muslin or lino, while some will thrust their eggs through the openings of the threads, and lay them on the outside. With some species a few rough threads stretched across will be preferred. To some of this group the sweetened sponge may be used with advantage.

NOCTUÆ.—While some of this group will lay in a chip box without much attention, they require to be fed more than any other, and the sponge moistened with honey and water is an absolute necessity if you would obtain eggs of the *Noctuæ*. Most of the species lay their eggs in batches, in very regular order, and some will even deposit them in layers, one above another. Some few, such as *A. tragopogonis*, insert them in a chink or crevice; others, such as the *Dianthesia*, whose larvæ feed in seed capsules or flower heads, insert them singly by means of their long ovipositor; these we never succeeded in inducing to lay in confinement, nor did we ever get *Noctuæ* to pair. They frequently live a long time before they begin to lay.

In all these cases, where space is no advantage, the best thing to use is a chip box, and, if it has a glass lid, you will be able to see what success you are having without disturbing the insect by opening it. In some cases where air is required, a piece of muslin stretched across, and fastened by the rim of the lid, minus the top, is all that is needed.

If more space be thought an advantage, use one of those oval boxes in which toys are sold. A paper lining, rather loosely fastened, is sometimes better. All species that lay at night should be kept in a dark chamber, and not disturbed. Even to take a light into the room will stop the process. Some insects will part with their eggs after being half killed, and we have even seen our setting boards covered freely with eggs from a specimen we had thought dead. Some collectors have, therefore, pinned those insects they desired to lay, on to a cushion, or piece of paper, and, though this is often successful, we would not recommend the adoption of so barbarous a practice. In one or two cases eggs have been squeezed out of a moth that would not lay, and have been successfully reared.

Our space is more than exhausted. Readers must make notes for themselves on the habits of the various species, and it will generally be found that insects of the same genus or family will have like habits. We shall be glad to publish any such.

Our next paper will be on the treatment of the egg and the young larvæ.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

This week we print a second paper on a British Mammal, and should be glad of our readers' opinions on the two.

NOTES, CAPTURES, &C.

A. ALNI BRED.—I bred a glorious *alni* from larvæ found in the New Forest, on the 15th, and another on the 18th. a pretty specimen but small. Five *U. ocularis* were in my breeding cage at the same time. Very few Butterflies have hitherto been on the wing, doubtless owing to the cold weather which has prevailed so long.—JOSEPH ANDERSON, jnr., Chichester. May, 19th.

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THE KITE IN WORCESTERSHIRE.—We think it may interest some of your readers to know, that a Kite was seen here on May 6th, about 5.30 p.m. It has not been seen again. — R. PRESCOTT DECIE, Brockleton Court, Tenbury, Worcestershire.

VARIETIES OF THE PRIMROSE.—One of your correspondents asks if white and pink primroses are common varieties, and if there are names for them. There is a plant of white primroses growing in one of our ash-beds, amongst a lot of the common yellow

ones, and we have also found pink ones at different times, both on red clay, Most flowers vary their colour according to any slight peculiarity of the soil in which they grow. Sowerby gives only the Common Primrose.—R. PRESCOTT DECIE.

OSPREY AT HUDDERSFIELD.—I have just seen a fine male Osprey, recently killed in this neighbourhood by a game keeper. The bird is in the possession of Mr. James Varley, and measured five feet from tip to tip of wings.—S. L. MOSLEY, Huddersfield.

ORNITHOLOGICAL NOTES FROM HARWICH.—On the 14th inst. I obtained a Magpie's Nest containing six eggs, I also saw two pairs of Tree Sparrows building their nests. On the 15th inst., whilst walking up the Dovercourt Shore, I saw seven Brent Geese, these birds always stay very late with us. I have seen them here in June, and I am credibly informed their eggs have occasionally been found dropped on the Sands, where they sit the greater part of the day. I also saw ten Turnstones in their breeding plumage, with them were a flock of about 30 Sanderlings in their breeding plumage. How many times does a Sanderling Moults in a year? as there are four distinct changes of plumage. In winter their upper portions are two shades of grey, with the lower portion white, in spring they gradually become black and brown with only the lower part of the breast and vent white, in which plumage they again visit us in August, except young birds, their Autumn plumage is black and greyish white above, white below; they then change again to their winter plumage, and are locally the "Silver Sandpiper." I also saw lots of Reed Wrens, they breed by hundreds in the big reed beds here; on one occasion, a young Cuckoo was found in one of their nests, this nest was built to four reed stems, and was standing some seven or eight yards from the edge of the water.—F. KERRY, Harwich.

VARIETY OF THE ROOK.—I have lately had submitted for my opinion a pair of young Rooks in a very interesting state of plumage.

They are the property of the Rev. G. D. Armitage, and were sent to my father for re-stuffing as "young Hooded Crows, bred in a rookery." They are about three parts grown, and are black with the extremity of each feather barred with grey, which gives them a mottled appearance. The ends of the wing and tail feathers are also barred. Mr. John Hancock figures a similar variety in his "Birds of Northumberland and Durham," and calls attention to the fact that this mottled appearance is a characteristic of the young of a great many of the Passerine birds. Another instance of a similar variety is mentioned by Yarrell, and another by Degland and Gerbe in their "Ornithologie Europeenne." In all these cases the birds were young birds and the mottled appearance would probably have disappeared if the birds had lived to moult. The one mentioned by Yarrell changed on moulting to an ordinary Rook.—S. L. MOSLEY.

THE NIGHTINGALE AT BIRMINGHAM.—On May 9th, when myself and Mr. P. T. Deakin were out mothing, we came across a crowd of about 50 people in the Hall Hill Road (two miles from town). On asking what they were waiting for we were informed that a Nightingale had been singing in the wood a few minutes before, after waiting till 10 o'clock we were rewarded by hearing him begin, and when we came away, after listening for over three-quarters of an hour, he was still singing. The next night we went again, when there were about 300 people assembled, he commenced at 9-35, and when we came away was still singing, and did not seem as though he would stop for some time. Two or three heavy carts that went by did not disturb him in the least, although he could not have been above a dozen yards from the highway. There was one in the same place about twenty years ago, and then crowds used to go nightly to hear him, but I have not heard of one being anywhere near there since.—GEO. F. WHEELDON, 6, Newhall Street, Birmingham.

EXCHANGE.

DUPLICATES.—Fair imagines of *Nyssia zonaria* and ova of the same. DESIDERATA.—Numerous.—GEORGE HARKER, 28, Brooke Road, Waterloo, Liverpool.

I shall be glad to exchange *Euchelia jacobæa* for Butterflies or Bombyces.—R. A. FRASER, Seafield, Abbotsford Road, Crosby, near Liverpool.

Larva of *P. flavocincta* (a few) and full-fed larvæ and pupæ of *E. cervinaria*, in exchange for other larvæ or ova.—H. F. NAINSELM, 9, Radnor Place, Plymouth.

Wanted a pair of Harvest Mice; Eggs or Insects in exchange.—S. L. MOSLEY, Beaumont Park, Huddersfield.

A root of White Bluebells (wild) to anyone who will pay postage.—S. L. MOSLEY

BRITISH BUTTERFLIES.

By J. E. ROBSON; with Figures from Life by S. L. MOSLEY.

Assisted by Contributors to the Y. N.)

TITHONUS, L.—Pl. , Fig.

"TITHONUS, L., *Tithonus*, the husband of Aurora. (Cf. Virg., *Geor.* I., 44)."—A. L.

Imago.—Pl. 16, Fig. 1.—Bright fulvous, with a dark-brown border, a black spot with two white dots near the tip; there is also generally a smaller black spot with a white centre at the anal angle of the hind wing. The male has a patch of the same colour as the border, extending from the inner margin to beyond the middle of the fore wing. The female is rather larger, paler fulvous, and is without this dark patch.

Larva.—Pl. 16, fig. 1a. Bright green or pale stone colour, with a darker dorsal line, a white sub-dorsal line, interrupted at each segment. Spiracular line white, bordered above with brown, shading off into the ground colour;

head light stone colour, covered, with short hairs, and very rough looking from small warts.

Pupa.—Pl. 16, fig. 1b. Suspended by the tail to a blade of grass. Short, and rather thick, the head flattened out, and forming two ears. Very pale green, or nearly white, in colour, with numerous black lines and marks.

Food Plants.—Various kinds of grass. Couch grass (*Triticum repens*), Annual Meadow grass (*Poa annua*), and others.

Times of Appearance.—The butterfly emerges from the chrysalis in June or July, and the egg is laid on blades of grass during July or August. The young larva emerges in about a fortnight, and feeds very slowly for a while, retiring to hybernate among the grass stems near the ground. It may be found again in May, or even in April, and is full fed in June, remaining three or four weeks in that state.

Habitat.—*Tithonus* is generally distributed throughout England, but is not so common either in Scotland or Ireland. It has not an extensive range abroad, occurring only in the South and West of Europe. It occurs in grassy places.

Varieties.—Varieties of *Tithonus* are not common, and none have been named. One of the most extraordinary aberrations is in the collection of Mr. Stevens. It is a female, and of the usual colouration, except that the dark border is replaced by one of pale drab, into which the pale fulvous of the centre portion of the wing is gradually shaded. Mr. Bond has a male with the fulvous portion of all the wings changed to pale drab, and females of the same character are in more than one collection. Mr. Bond's specimen was taken in the New Forest.

Parasites.—I have heard of none as yet. Some larvæ sent me this year by Miss Hinchliffe, of Instow, North Devon, have produced ichneumons that have spun *Microgaster*-looking cocoons.

THE MOLE.—(*Talpa Europæa*.)

By J. OSBORNE.

In attempting to write an account of the Common Mole I am afraid I have little new to communicate, for it is an animal that has been carefully studied by many naturalists, whose opportunities of observing it have been far greater than mine. I have never been able to dig up the ground so as to examine their nest and galleries, but I have been much interested in watching the signs on the surface that showed where they were and what they were, doing. The first mole I ever saw was crossing a path in the open part of a wood. I ran to it, and stopped it with my foot, that we might examine it, and though I scarcely pressed any weight at all upon it, it was quite dead when I lifted it up. The peculiar manner in which its legs projected from the sides, the bare skin of its scoop-like hands or fore paws which appeared to be set on sideways; the strong pointed nails or claws; the smallness of its eyes, which I had some trouble to find; and the dense short hair, so closely set, all struck me as being remarkably different from other animals I had seen, but all of which a little consideration showed were exactly suited to its mode of life. It was long before I caught another, and this also was in a wood. After examining it carefully I put it on the ground at my feet, and without any attempt to get away from me, it commenced to dig, which it seemed to do with great ease and very quickly, the stiff looking fore paws working with great rapidity. I took it up once or twice again to watch it further, but when it got about half covered I found I could scarcely get it out at all, its fore legs seemed to hold so tenaciously that, fearing to hurt it by pulling, I let it go, and in a very few moments it had vanished. Every time I put it on the ground it commenced to dig just where it was. It did not seem to move an inch, or ever think it would be safer further from me. Its instinct evidently taught that safety was

underground, and it took the shortest road.

For the last three years I have noticed the tracks of moles on a piece of pasture land, that is frequently covered for a longer or shorter period with water, sometimes remaining so for several days. Where they go when this occurs has puzzled me very much. I cannot imagine that any portion of their underground retreat is water proof, nor have I seen any suggestion in books to explain how it is, that even where the ground is not covered with water, their runs and galleries do not fill during very heavy rains. It is true that the mole is said to swim well and to be fond of the water, but it would drown for all that if kept in it or under it for a short time. I have been puzzled, too, to understand how it is, that the soil of a Mole hill is thrown out at such a very small hole. The orifice is scarcely ever larger than a man's finger. The mole appears able to penetrate the surface for the purpose of throwing out the soil, even when it is frozen quite hard. In fact I believe the winter is the time when most of the mole hills are thrown up, and I always noticed fresh ones during and after frosts, as though the torpidity then of the animals furnishing its food supplies made it necessary for it to seek

"Fresh fields and pastures new,"

if such an expression can be applied to the subterranean burrows of the mole.

I have nothing further to add of my own observation. The mole is about 5 inches long, with a short tail. It is generally black in colour, but I have read of spotted and cream coloured specimens, the latter being said to frequent dryer lands. The nose is long and very slender, keen of scent, and small enough to penetrate the burrows of the earth worm. The skin as already said, is very compact and covered with dense short hairs, very bright and glossy. The fore legs are short and very powerful, and though they appear exceedingly awkward and clumsy when compared with those of other mammals, they are well adapted for digging.

The eyes are very small and scarcely visible. I have seen it said that these small eyes are an advantage, "a small degree of vision being sufficient for an animal ever destined to live underground." This does not seem to me to be in accordance with the fact that most of nocturnal animals have large eyes. I would rather incline to believe that the eyes are gradually becoming smaller from disuse; as the eyes of the blind fish in the cave of Kentucky have done.

The mole is said to form itself a habitation from which its runs and galleries may all be entered. It sleeps five or six hours at a time, in warm weather, and is most active at night and early in the morning. It leaves this shelter in spring, and constructs another the following autumn. This domicile has an arched roof of soil, well cemented or pressed together. Its nest is generally built where three or four of its galleries converge, and is said to be principally formed of the blades of young corn. This it may prefer, but as it abounds in places where corn is not grown, no doubt any tender grass blades will answer its purpose. It often leaves its burrows in the early part of summer, and seeks its food on the surface of the ground, when it will be able to get a change from the earth worms and underground larvæ, that form its food during the greater part of the year. Its food is not confined to such things as these, for it will devour a mouse or bird if it can obtain one, and is even suspected of being a cannibal.

Some farmers wage unending war on the mole, and there is a class of men who make their living as "mole catchers." Whether it really does more harm than good seems very doubtful. It unquestionably brings up to the surface, soil that has not been exhausted, and which when spread over serves almost as well as manure. It also destroys immense numbers of earth-worms and other things, which perhaps do as much or more harm than the mole among the roots of grass or growing crops.

E. G. MEEK,
NATURALIST,

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 83.

JUNE 11TH, 1881.

VOL. 2.

REARING LEPIDOPTERA FROM THE EGG.

WE need scarcely say that eggs of Lepidoptera hatch, without any process of incubation. It is not necessary therefore that any special care be taken of them to cause the appearance of the larvæ. All that you must do is to see that when they do hatch you have a supply of food ready. Nevertheless it is quite possible to hasten or retard their development, and while you may in some cases get an extra brood in the season, by forcing them on in their various stages, you must always be careful with those species that remain in the egg state over the winter, or whose eggs are laid in the early months of the year, not to encourage them to hatch until the food can be procured. You will do well, therefore, to keep all the eggs out of doors during winter, for even the temperature of a cold room is above that of the open air, and will make your eggs hatch before you are ready for them. Even with the greatest care you will not always avoid this, and when it happens you must do your

best to find food for your young larvæ. Give them the unopened buds of the food plant, selecting in preference those most developed, or give some substitute food, if procurable, on which we will speak further on. Remember, too, that your young larvæ can bear cold, perhaps better than you can, and that they do not require so much food when at a low temperature. You will therefore be able to keep them with very little to eat in cold weather, if they are out of doors, until the advance of vegetation enables you to procure what they require.

We have already spoken of glass-capped boxes, as being best to keep your laying insects in. You can watch, not only the laying process, but the development of the eggs themselves. Nearly all eggs change colour before the young larvæ appear, and by watching for this change, you can always be ready for them when they come. When the eggs have been deposited in an ordinary chip box on lino, &c., we always find it best to cut whatever they are on, into small fragments, with the eggs on them, and put them in one of those small wide-mouthed bottles, sold

at chemists for pomade, &c. You can watch the hatching of the eggs as carefully in these, as in anything else, and a sprig of the food plant will keep fresh in them for two days, or even longer, if the bottle is corked. This is a great advantage, for the food of young larvæ must be fresh, and while they are so very small they are not easy to remove. Remember, however, that larvæ must have air, or they will die, and though they may be kept in one of these wide-mouthed bottles, with the cork tightly in, for the time we have named, this can only be done when they are very young. When they get older they must be removed to a more roomy receptacle. In No. 27, Vol. I, a cheaper, and, in some respects, a better plan was suggested for making a vessel in which to rear your smallest larvæ. Take an ordinary 4oz. medicine bottle, and cut off the upper portion from about an inch below where it slopes off to the neck. If you have not a diamond, take a thick wire, heat it red hot, and pass it round the bottle, where you want it to separate. Instead of a wire we have also used the shank of an ordinary clay pipe. This cracks the glass less or more where it touches, and the upper portion will come off, fitting exactly to the lower. Now take a long strip of paper, paste it, and wrap it round the upper portion of the bottle, leaving about half an inch projecting, or overlapping below. This serves nicely as a lid, and with the neck corked is as air-tight as the other, while it is more easily emptied of its

contents to change the food. The food must never be allowed to get stale or mouldy in these receptacles, and by the time the larvæ have made their second moult they are ready for removal to a larger vessel. A very good breeding cage may also be made from an ordinary white glazed jam pot, or one of those red clay tree pots, generally used by gardeners and florists. Rub down the upper edge till it is quite level, and lay over it a piece of glass rather larger than the mouth. We have used with considerable success a tree pot of this sort half filled with sandy soil, and sunk three or four inches in a large box filled with damp earth. The porous nature of the pot ensures sufficient moisture being absorbed to prevent the food drying too quickly, and as one piece was consumed another was added, and when the larvæ had removed to the fresh food, the old piece was taken out. Here they retired beneath the surface to pupate, and exposed to all the rigours of the winter, always emerged in good order, never suffering from being handled or disturbed.

In our first volume are several excellent suggestions for breeding cages. To these we must refer our readers, as they are too recent to bear repetition. At the same time we shall be glad to have further suggestions from any of our readers on the interesting subject of breeding from the egg, and we shall be specially glad to have notes on any species that have been successfully reared.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

E. F. D., Oxford.—Your letter has been laying at the printers. Dr. Ellis' address was corrected in No. 77.

NOTES, CAPTURES, &C.

E. BLANDINA WITH EIGHTEEN SPOTS.—I find I have a specimen of *E. Blandina* with five spots on each upper wing, and four on each hind wing. This is more than you name in your account of the species.—THOS. HANN, Byers Green.

CAPTURES AT CROSBY.—The following notes of captures may probably interest your readers. Saturday, May 21st. The past fine weather has brought out many insects, and the afternoon was very profitably spent on the Crosby sand-hills. I took a great number of Hymenoptera, many being new to me. The genus *Ophion* was represented by two species, the *Apida* by five, and the *Vespida* by one. Larvæ of *Bombyx quercus* were, for the great part, full fed, and lying stretched full-length along the stems of the willows. The beautiful larvæ of *Orgyia fascelina* and *Bambyx trifolii* were far from uncommon, but the former, which were very fine, occurred more plentifully than the latter. Those of *B. trifolii* were rather young, and I took a good number just before dusk. They are very conspicuous, and soon take alarm, rolling themselves into a ring, but do not, as a rule, drop from the plant on which they rest. In confinement, they readily eat Whitethorn, most species of Willow, and trefoil. *O. fascelina* seems to prefer Whitethorn and willow. *Euchelia jacobæ* were just putting in their appearance in the perfect state, flying in the hottest sunshine, but some had already lost their beautiful crimson markings. One specimen of *Lycæna alexis* was seen. Wednesday, 25th May. A short time spent in the same locality, during the evening of this day, yielded the same larvæ, together

with an imago of *Cidaria russata*, a friend residing at Crosby told me that a specimen of *Nyssia zonaria* came to treacle about a month ago. I was not aware that this moth had a partiality for intoxicants, but perhaps a similar incident has come under the notice of others. I was much surprised the other day to find a fine, fresh specimen of *Smerinthus populi*, at rest on a wall, almost in the heart of the city. A couple of poplars grew near. *Polyommatus phlæas* is now out on the railway embankment near Otterspool. —CHARLES H. H. WALKER, 180, Faulkner Street, Liverpool.

A TAME GULLIEMOT.—A gentleman gave me a Gulliemot last Monday that he had caught when bathing. It was quite uninjured and very wild, bit fiercely, and cried out loudly. Its note then, was like the quack of a duck, or between that and the caw of a rook. I had it to carry home in my hands, and had great difficulty in getting it there without being bit, and it struggled incessantly to be away. In one week it has become so tame that it follows me about the garden till I dig it worms, which it catches as I throw them to it, and it scarcely takes any notice even of the children about, and will let them carry it about in their arms. There is a small pond near, to which the boys carry it every day. As soon as it gets near the water it jumps in, dives, and splashes about as ducks and geese sometimes do, but it never remains in very long, swimming to the side, where it sits pruning its feathers till it is carried home again. The first time it was taken there, some ducks were in the water. It attacked the drake, and soon drove them all from the pond. Now, they swim off as soon as it appears. It will eat the small newt (*L. punctatus*), but not the larger species (*T. cristatus*), but, except fish, it appears to prefer the earth worm to anything else. In digging for worms I have turned up larvæ of the Common Swift, of the Earwig, and the Wire Worm, but it would not touch any of them. Altogether it is a most interesting

pet, its curious gait, for it is a bad walker, and does not spread out the web of its feet, its half-upright attitude, and shrewd look being all striking characteristics; but the most curious thing is the short period in which a bird, so entirely a sea bird as this is, has made itself comfortable on land, and accustomed itself to domestic life, and it is most comical to see it waddle down the garden for worms, snapping at flies as they come near it.—JOHN E. ROBSON, West Hartlepool.

THE PUPÆ OF LEPIDOPTERA.

By JOSEPH ANDERSON, JR.

See Plate 19.

I wonder how many persons unacquainted with the study of insects if asked the meaning of the word pupa would be able to return a correct answer. But tell them that the word has the same signification as chrysalis, and they would at once understand the term, and yet the two are not strictly synonymous. The word chrysalis, as I need not remind you, is a Greek derivative signifying gold, and is applicable to the Papilionidæ only, and in reality to but a few of them: the chrysalides of the *Vanessidæ*, such as Peacock (*Vanessa Io*), the Tortoiseshells (*Urticæ* and *Polychloros*), the Red Admiral (*Vanessa Atalanta*) glittering as if made with this precious metal. Aurelia, from the Latin *aurum*, was another word, now become obsolete, frequently used by the fathers of entomology in their writings on the subject.

We see, therefore, that the word chrysalis, although the most generally understood, can with propriety be used for a very small portion of lepidopterous insects. The great naturalist Linnæus, however, invented a term that would apply to this stage of metamorphosis in all insects, that of Pupa, the perfect insect being bound up or masked in the pupa-case.

The Pupæ of insects are divided by New-

man into three kinds: Amorphous, Necromorphous, and Isomorphous, long words but easily explained. The first, Amorpha, when they do not resemble the imago; Necromorpha, when they are very like it, the third, Isomorpha, when they are similar to the perfect insect, except that they are wingless. It is scarcely necessary to say that the lepidoptera belong to the first of these divisions. Should you prefer English terms some have been invented; for myself I must confess that I prefer those just given. This is a matter of opinion, here are the divisions in English for you to decide. A pupa in which the future limbs are shown outside the case is "obtect"; a "nymph" is a pupa in which they are folded up; but not, as in the coleoptera, enveloped in a hard uniform case; and when no parts of the future insect are visible, being hidden in a smooth uniform case, as in dipterous insects, the term "coarctate" is employed. My notes will be confined to the first division of pupæ, in science Amorpha.

I suppose most people know that a butterfly or moth in the cycle of its existence passes through four stages: the egg, larva or caterpillar, pupa, and imago. But would it not be new to some to be told that "ab initio," the future insect existed in a rudimentary condition, and that the various metamorphoses are a constant succession of clothes changing? The egg shell is thrown off, and the caterpillar appears, then goes on eating with voracious appetite till his clothes get too small for him, they slit down the back and he appears in a new suit, changes his juvenile suits several times; at length gets rid of them altogether, dons the sober pupa dress, throws this off, and, clothed in a robe of beauty, with colours bright from heaven's dyes, comes forth a perfect butterfly, or moth to enjoy an existence as dissimilar as may well be to aught that has preceded it—an existence of unmixed pleasure, of disporting in the sunshine, and sipping the nectar from the chalices of flowers. This is a rapid sketch of the life-history of a lepidopterous insect.



Zygaena.



O. potatoria



E. lanestris



S. hembeciformis



S. carpini (pupa)



S. carpini (cocoon).



S. ligustri



S. populi.



B. quercus

PUPÆ OF

LEPIDOPTERA.

S.L.M. del.



A Pupa consists of thorax and abdomen of nine annular connected segments. The former contains the head, antennæ, proboscis, legs, and wings, the contour of which may be plainly perceived: the abdomen that of the future butterfly or moth. It often happens that although perfectly formed in the puparium, from some reason or other, the imago is not able to burst from its covering. If then the integument be carefully peeled off, the marvellous neatness with which the different parts are packed away in the smallest possible space will be easily seen. The last segment of a pupa is either round or pointed, or terminated "by a process which has often two or more points called the cremaster. In male pupæ there are two small hooks beneath, separated by an indentation in the last segment but one." Pupæ, as do larvæ, breathe by means of spiracles, which are situated on either side and on every segment but the first and thirteenth.

(To be continued).

CHICHESTER AND WEST SUSSEX NATURAL HISTORY AND MICROSCOPICAL SOCIETY.

We have received from our friend, Mr. Joseph Anderson, junr., of Chichester, the report of this Society, which, with a very limited membership is doing its best to extend its sphere of usefulness. It appears to meet monthly, and has occasional excursions also. At the monthly meetings one or more papers are read, some of which, judging by the titles, must have been of considerable interest. "Notes on some of our insect foes," by Mr. Anderson; "Limenites Sibylla," by the Rev. H. Horseman; "Spiders" by F. T. Freedland; "Moles and Mole Crickets," by Dr. Paxton. "Changes in the Plumage of Birds," by the President, Mr. W. Jeffery, &c., &c. We regret that the state of their finances do not allow these and

others to be printed in the report. The Society proposed to organize monthly Saturday afternoon excursions during the coming summer. In some places the Railway Companies are getting up Saturday afternoon excursion trains to various places, which might be greatly utilised for such purposes. We believe where they have been arranged, they have always been very remunerative to the companies, and probably other Railways would be glad to do the same if their attention was called to it. A rather novel feature appears in the list of members, viz., a class of members called "Lady Associates." We are very pleased to see no less than Twenty-three "Lady Associates" belonging to the Society. They have also Thirteen "Junior members" whose subscription we suppose will be something less than the others. These are both steps in the right direction, and we call the attention of other Societies specially to these points as well worthy of imitation.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with Figures from Life by
S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

HYPERANTHUS, L. Pl. 16, Fig. 2.

"HYPERANTHUS, L., *Hyperan'thus*; probably a typographical error for *Hyperanthes*, a son of Darius, who fell at Thermopylæ. Cf. Her. VII. 221."—A. L.

Imago.—Pl. 16, fig. 2. Very dark brown, quite devoid of markings, or with traces more or less indistinct of the eyed spots on the underside. Underside, dark brown, with a row of white centred black spots in yellow rings, near the hind margin of both wings.

Larva.—Pl. 16, fig. 2a. Pale straw colour, with a dark brown dorsal line, which is broadest and most distinct at the anal segments, gradually narrowing and becoming fainter as it approaches the head; spiracles

black. The body is covered with whitish hairs, emanating from the usual warts.

Pupa.—Pl. 16, fig. 2b. Very short and stumpy, pale brown, marked and spotted with darker. Head rather rounded.

Food Plants.—Grasses. The larvæ have been found on various species, but Mr. Newman noticed that in confinement it selected the common Couch grass (*Triticum repens*) in preference to others.

Times of appearance.—This butterfly emerges from the chrysalis in the early part of July, and continues on the wing until August. The egg is laid singly on the grass stems, and hatches in about fourteen days. The young larvæ feed very slowly during the autumn, and conceals itself at the bottom of the herbage when very small. It appears again early in Spring, and feeds slowly until about the end of June, when it suspends itself by the tail, and changes to pupa. In mild winter it may be found in March, or even earlier, but being a night feeder requires searching for with a light.

Habitat.—I have never found this butterfly except in woods or their immediate vicinity. It is very local in some districts, but appears to be more generally distributed in the better wooded parts of the island. In Ireland it is very local, and in Scotland does not occur in the more mountainous parts. It is found all over Europe, except in the extreme north. It occurs in Asia, but only in some of the districts bordering on Europe.

Variation.—*Hyperanthus* varies on the upper side only in the greater or less distinctness with which the eyed wings of the underside show through. Sometimes these marks are entirely wanting, and the upper side is uniformly dark smoky brown. The underside varies greatly in the size and number of these characteristic marks. There are generally three on the fore wing and five on the hind wing, but some specimens have six on the hind wing, while they may be found in every intermediate form, until the only traces of the ocelli are the white centres, and

even those disappear from some specimens. The form in which the eyed rings are represented only by the white spots of the centres is called *Arete*, Mull., and in Dr. Staudinger's large catalogue the only locality given for it is the valley of the Amoor, but Mr. Sydney Webb takes it not uncommonly at Dover, and I have specimens from other places also, including one taken at Crimdon Dene, three miles from Hartlepool, in which there is only a very faint trace even of the white spot. Another variety is named in Kirby's catalogue *Vidua*, Mull., but I know nothing whatever about it.

Parasites.—None recorded as yet that I have seen.

BRITISH BIRDS, THEIR NESTS AND EGGS.

By S. L. MOSLEY.

HOBBY.

Falco subbuteo, Linn.

Hebog yr Hedydd (Anct. Brit.)

SUBBUTEO.—*Sub* (L) under, The inferior of *Buteo*—The Buzzard.

Size.—Length of male about 13 in., expanse of wings 22 in.; the female expands to about 24 in.

Plumage.—The adult male has the whole of the upper surface, wings, and tail dark slaty blue, with a pale streak over the eye. The throat is white, increasing to reddish towards the feathers of the thigh. On the belly each feather has a dark stripe down the centre. The bill is horn-colour. The cere and legs lemon-yellow, and the eyes hazel-brown. The legs are feathered a little below the knee.

The following is a description of a fine female killed several years ago, in May, at Kingsbury, in Middlesex:—"Bill blue horn colour, tip darker, cere yellow tinged with green, back and upper parts bluish black, each feather with a narrow black line down

the centre, the feathers in the crown of the head slightly edged with reddish brown, moustache and streak under the eye black, throat white, a streak over the eye white, two short streaks or marks at the back of the neck white tinged with red, belly and sides white streaked with black, vent, under tail-coverts and thighs, bright rusty red with some small specks of black, flight feathers upper side black slightly tinged with blue, each feather has a narrow edge of white, underneath the wing the flight feathers are spotted with reddish cream colour, and the under parts of the shoulders are creamy white spotted with black, tail bluish black on the upper side, under, except the two centre feathers, the inner webs are barred or blotched with pale dusty red, legs and toes yellow, claws black.

IMMATURE birds resemble the female, but the feathers on the back are edged with paler colour, and the tail more distinctly barred with light brown.

THE YOUNG in the downy state have the head, neck, and under parts dull white; back and shoulders dingy slate colour.

VARIETIES of the Hobby seem to be very rare.

Note.—The note of the Hobby is said to resemble that of the Wryneck.

Flight.—The flight is described as being swift and steady, long sustained, and continued by very slight movement of the wings. Like the Peregrine it will sometimes ascend to a great height in pursuit of its prey.

Migration.—The Hobby seems, in England, to be a summer visitant, and is most frequently seen in April and the end of October, but specimens have been killed at later periods of the year.

Food.—Like all the other members of the present genus, the Hobby is fearless in attacking its prey, and was esteemed in falconry for flying at smaller game, such as larks, quails, and similar birds. Its natural food consists of small and medium sized birds, up to about the size of a partridge. But it has been

especially noticed for its skill and perseverance in pursuit of the skylark, which seems to be its favourite food. The lark also exhibiting great dexterity in avoiding the fatal stroke of its pursuer. It is also said to devour quantities of large beetles, Mr. Henry Doubleday found the stomach of two specimens he examined filled with the common dung beetle (*Geotrupes stercorarius*).

Habitat.—In England the Hobby has never, so far as records show, been a very common bird, but still not a very rare one, as there is scarcely a county from which specimens have not been procured. In Scotland it is much less common, and in Ireland it is very rare. It has been known to breed in Devonshire, Hampshire, Nottinghamshire, Suffolk, Dorsetshire, Cambridge-shire, Middlesex, Hertfordshire, and Warwickshire.

ABROAD it is a common species in most parts of Europe, except the extreme north; also in Siberia and India, China, Western Persia, Palestine, and some parts of Africa.

Nest.—Like most of this family the Hobby is a creature of circumstances, and adapts its nest to trees or cliffs, whichever seems most convenient. It appears, however, to prefer high isolated trees, on which it generally builds among the uppermost branches. The nest is composed of thorns and twigs, lined with wool. Sometimes, perhaps most frequently, the old nest of a crow, or magpie, will be adopted, and slightly repaired.

Eggs.—The eggs of the present species are rather larger and rounder than those of either the merlin or kestrel. Some specimens are hardly distinguishable from those of the Kestrel, being red-brown, with darker shades; in others the ground is pink, spotted with light brown. They are, however, never quite so dark as those of the Kestrel, being more like the Iceland Falcon in colour. The usual number is two or three, but occasionally four are laid. The eggs should be looked for from the middle to the end of June.

THE YOUNG NATURALIST.

E. G. MEEK, NATURALIST,

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 89

JUNE 18TH, 1881.

VOL. 2.

A BAD SEASON.

SOME of our numerous correspondents express the opinion that 1881 is going to be a good year for insects. Others express exactly the opposite; and think it is going to be a very bad one. None of them favour us with their reasons for these opinions as they would have been worth publishing. There are few subjects on which we are so utterly ignorant as the causes that lead to an abundance or scarcity of insects in any particular year. Nay it is doubtful if we even know whether they are really abundant or scarce, or only apparently so. They will swarm one night, at sugar or flowers everywhere, and the next with no change of wind, with the same temperature, no difference of any sort that we can perceive, they will not appear at all, or a single *polyodon* or *ironuba* on the sugar will be the exception that proves the rule. We have even noticed, and who has not, that on some particular night, when we were taking them freely suddenly they would cease feeding, then wings would be raised as if they had been

startled, and were ready for flight, then one by one they would take wing, and when we reach the next patch of sugar, not a specimen remains. Sometimes for weeks together, sugar is utterly unproductive, sometimes for a whole season it remains so. With flowers or light the same uncertainty obtains, and no one knows the reason. On the east coast, where the writer resides, we know that it is useless to sugar, visit flowers, or indeed to seek for imagines at all, when we have an Easterly or North Easterly wind. Yet these would sometimes prevail for two or three weeks together, during which period insects must emerge, must feed, must copulate. No doubt wet, cold, chilly weather retards development, larvæ will not feed so well, imagines do not emerge so freely; and probably with many species, the season for their appearance once over, they wait till the next year instead of coming out much after their unusual time. A late season, or an early one, we can generally understand, but of the causes that produce a bad season or a good one we have but hazy ideas. When the ground is covered with snow for any

great length of time, hybernating larvæ must be protected from insectivorous, birds, &c. Long continued rains are likely to destroy insect life in all its stages. These and a few more general suggestions may be made, but beyond this little or nothing is known or even guessed at. Our readers will be wondering what all these desultory remarks are to end in. We often complain of a dearth of records of capture. Perhaps the reason sometimes is that no captures were made, and our idea to-day is that if our readers would send us an account of their want of success at times, it might be of more value than a record of very wonderful captures. In sending such an account of failure we would suggest that the force and direction of the wind, the temperature, the barometer be all borne in mind; that notice be taken whether the sky be clear or overcast, or any other meteorological conditions that might be noteworthy. Do not let our readers start off in affright at all these suggestions. If it is too much trouble to find out all, it can be no trouble to notice some of them. Nor must they expect great and immediate results from such observations. For many many years, observers have been noticing and recording various matters affecting the weather, and we are only now beginning to have attempts made to foretell what will be a few hours in advance. It may be many years hence ere we may be able to say to-morrow night will be a good one for sugaring, next

week will be productive at light, and so on. But if the observations be made and recorded in sufficient numbers the time is sure to come when these prognostications can be made with more or less certainty.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

We have to thank Miss Angelina Kerry, of Harwich, for a specimen of a young Water hen in the down.

J. K.—Are you sure you are right? All the *lanestris* we have had, broke off the end of the cocoon as we have shown in the figure.

We can send you one for examination if desired. We were looking through the plates to Roesels "Der monatlich herausgegebenen Insecten-Belustigung erster Theil," the day we received your letter, and saw that he figured the cocoon of this species in exactly the same way as in our plate.

G. T. PORRITT, F.L.S., is thanked for a larva of *T. betule* sent for figuring.

EXCHANGE.

Wanted fine imagines of *A. cratagi*, *A. selene*, *M. Cinxia* and *Athalia*, *V. polychloros*, *C. Davus*, *S. Aegeria*, *N. lucina*, *T. betule*, and *pruni*. I will make a good return.—JOHN E. ROBSON, Bellerby Terrace, West Hartlepool.

Imagines of *Abraxas ulmata* for exchange. Desiderata very numerous.—GEORGE A. HARKER, Waterloo, near, Liverpool.

Larvæ of *Agrotis valligera*. Desiderata numerous.—T. F. TRITSCHLER, Alliance Street, Hartlepool.

Wanted a pair of Swifts in the flesh.—S. L. MOSLEY, Huddersfield.

NOTES, CAPTURES, &C.

ABUNDANCE OF WASPS.—On the 7th inst., I killed in about one-and-half hour 125 Queen Wasps, on the Flowers of *Cotoneaster microphylla* in the following proportions for 100:—

Vespa Rufa	..	..	65
„ Germanica	..	..	15
„ Britannica	..	..	10
„ Sylvestris	..	..	7
„ Vulgaris	..	..	3
			100

—A. O. W., Nantz Glyn, Colwyn Bay, North Wales, June 11th, 1881.

VARIETY OF ROOK.—I also had a variety of the immature Rook in the same singular mottled plumage as yours. It was killed near Edinburgh, and might at first sight have passed for Hybrid, between a Carrion Crow and a Hooded Crow. J. H. GURNEY, JUNR., Northrepps, Norwich.

I see in the Y. N. you give a notice of two young Rooks mottled with grey. I have an old bird, from the appearance of its face I should say, very old, mottled, or rather barred with grey. I have also one entirely of a slate-colour all over, a full-grown young bird, killed in Sussex two years ago. The old bird, I should say was killed in Scotland, but I do not know how long ago; it was procured for me by a friend two years ago.—FREDERICK BOND, Staines.

AN ANGLING INCIDENT.—A Bradford Gentleman angling at Silsden, on Thursday morning, got a "Rise at his Flies" of a novel character. While arranging a Fly cast, previous to attaching it to the fishing line, he was surprised to find a pull violently; on looking round for the cause he found that a young Hawk had become enamoured of one of the Artificial Flies (a partridge hackle), and had swallowed the gaudy lure. While the hook was being extracted, the bird made good use of its claws, and left its mark upon the fingers of its astonished captor. The

bird was set at liberty to search for more palatable food.—*From the Bradford Observer, June 11th.*—J. W. CARTER.

"HOW THE WEASEL SLEEPS."

Fearing danger near might come,
His ear lays low, and widely spread,
With nose to earth, he looks quite dumb;
Some people think the weasel dead.
But mark his eye, t'seems closed to light—
Look nearer, then you'll see it peeps;
His feet are passive, but placed right
For action—thus the weasel sleeps.
Alive his every power he keeps—
His nose, his ears, his feet, his eyes,
Are ready now, and so he sleeps,
And sniffs the danger, but ne'er flies.
Forewarned forearmed his "legend" is;
"Pugo vivere!" coward, see;
Pugno pro vita, better 'tis—
The battle won, and I am free.
And so the weasel sleeps, 'tis said,
Alive his every sense; he keeps
Strict watch, whilst he is oft thought dead;
Yes, that's the way the weasel sleeps.

C. S. GREGSON.

THE PUPÆ OF LEPIDOPTERA.

By JOSEPH ANDERSON, Jr.

(Continued.)

The Pupæ of lepidoptera may be primarily separated into two great divisions--naked and clothed--those that are enveloped in a covering or cocoon, and those that are not, and these yet again into two more groups, subterranean and superaterrene, those in which pupation takes place beneath the soil and those in which this change is effected above it. They are likewise either attached or unattached.

No British butterflies, with the exception of the Skippers (*Hesperidae*), spin a cocoon, and in the older works on entomology these little insects were classed amongst the Heterocera or moths. There is certainly much to be said in favour of such an arrang-

ment, the antennæ bear a striking resemblance to those of the *Zygænidæ* and *Procridæ*; when they are at rest a small portion of the fore-wings overlaps the hind-wings, which have a slight tendency to fold up, and though the wings of many moths such as the *Geometra* are stiff and incapable of doing so, there is no other disposition either amongst our own or exotic *Papilionidæ* to double up in the fan-like manner characteristic of most moths. But perhaps the strongest argument that can be advanced in favour of those who regard the *Hesperidæ* as moths is the fact mentioned by Kirby of an Australian butterfly, allied to this genus, possessing a frenulum or bristle, the only instance in which this structure is known to occur in a so-called butterfly. By some systematists the Lepidoptera have been separated into two divisions dependent on this distinction; the *Papilionidæ* being classified as *Achalinoptera*, wings without hooks; the *Heterocera*, as *Chalinoptera*, wings with hooks. In the Death's-head moth (*Acherontia Atropos*) the beautiful arrangement of the frenulum of the lower wings, which fits into the loop on the upper when the wings are expanded thus linking them together, may be seen to perfection without the aid of a magnifying glass.

Based solely on this distinctive character, the presence or absence of the frenulum, the present position of the British *Hesperidæ* is the right one as none of our species possess this structure.

The Pupæ of butterflies are either suspended (*Suspensi*), hanging with the head downward, and attached by the tail, or girted (*Succincti*) these adopting the far more comfortable position one would think of an upright posture, and besides being secured by the tail with a button of silk, are supported by a silken cincture across the body, nearly in the middle, but rather closer to the head than the tail end. The butterflies which emerge from suspended pupæ have but four perfect legs, the first pair not being fully developed. The pupæ of many of the micro-lepidoptera

are suspended by the tail, and a few are supported by a cord of silk. No known butterfly, British or foreign, passes the pupal stage of its existence beneath the soil.

Before leaving the pupæ of butterflies it may be well to call attention for one moment to the silken girdle which supports some of them. How is this formed? It is needless to state that the belt is not the work of the pupa. When the larva of one of the succincti is full-fed, it crawls up the stem of a plant, or selects some other suitable position for its metamorphosis. The first thing it does is to spin several lines of silk to which the tail end of the pupa will fasten itself, the caterpillar then bends its head backwards as far as it can reach, turning from side to side till it has spun a sufficient quantity of silk cords to support the weight of the future pupa. It then dexterously extricates its head from beneath the girdle, which owing to the elasticity of the newly spun silk it is the more easily enabled to do, and is so prepared for its change.

The cocoons in which some of the pupæ of lepidoptera are enveloped must certainly be regarded as protective; but why they should be limited to a certain number of species, and those not the rarest, or most delicate, it is not easy to understand. Nor is the pupa skin of the species thus clothed and protected remarkable for being thinner, indeed many of the *Sphingidæ* possess one of far greater tenuity. The idea therefore suggests itself to me that the clothed species are very susceptible to damp, and likely to be destroyed by moisture, and that the cocoons serve the purpose of keeping the enclosed pupa dry, at least in the case of the hard compact cocoons, such as those formed by the Eggar (*Bombyx quercus*) and Drinker (*Odonestis potatoria*) moths. I am confirmed in this opinion by the fact that a number of cocoons of the Emperor moth (*Saturnia carpini*) which I subjected to the damping process all perished, failing to produce a single moth.

(To be continued).

NATURAL HISTORY DIARY.

By J. W. CARTER, Bradford.

May.

1st.—Sedge Warbler and Yellow Woodwren arrived.—(E. P. P. B.)

2nd.—Saw a Greater Spotted Woodpecker in Bingley Wood.—(E. P. P. B.)

4th.—For several days I have observed a pair of Linnets come to a seed bed in my garden, when a second male came the first chased it away immediately, while the female picked up fibrous roots, &c., for building.—(S. L. M.)

7th.—Wild Hyacinth (*Scilla nutans*) in fl., Saltaire.

8th.—Saw the Whitethroat. Herb-Paris (*Paris quadrifolia*) just coming into fl., Bingley Wood.—(E. P. P. B.)

Fidonia atomaria out, Rombalds Moor.

The Tiger Beetle (*Cicindela campestris*) darting about very rapidly in the hot sun. Bees and Diptera flying about in great numbers. *Aphodius fimitarius* common in cow dung on Baildon Moor. *Carabus nitens* out, Rombalds Moor. *S. belgiana* on the wing. Found Meadow Pipit's nest, containing eggs, in a furze bush, which we considered a rather abnormal situation, as we have never found them previously except on the bare ground. Took several males of *Saturnia carpinii* with a female, which was equally attractive after copulation, which is altogether contrary to the statement usually made in books.

9th.—A female Sparrow was feeding in a seed bed opposite my window, a male came, strutted about with drooping wings and spreading tail, and after parading about before the female for some time they flew off together, evidently having made a match. I had observed the same thing a few days before, but the female immediately chased the male away, which returned, but was again dispersed.—(S. L. M.)

11th.—*Cidaria suffumata* out.—(E. P. P. B.) Saw and chased for a considerable distance, a specimen of *Vanessa Antiopa*, on the highway near Barden Tower. Saw the Blackcap and Garden Warbler in Bolton Woods.—(J. A. Butterfield.)

12th.—*Pieris rapæ* and *napi* first seen; Landrail and Sedge Warbler heard.—(S. L. M.)

14th.—My brother and I saw, and heard singing, for the first time in this locality (Bingley Wood) that beautiful bird, the Pied Flycatcher. I saw it building in a hole in a beech tree on the 18th inst., which afforded me, I can assure you, much pleasure.—(E. P. P. B.) *M. fluctuata* seen.—(S. L. M.)

18th.—Saw the Swift and Spotted Flycatcher at Beckfoot.—(E. P. P. B.) *Rumia tagata* first seen.—(S. L. M.)

20th.—Found two nests of the Grey Wagtail, containing young, in Goit Stock Valley, Bingley.—(E. P. P. B.)

21st.—Took *Hadena glauca*, Bingley.—(E. P. P. B.) Larvæ of *M. strigilis* in stems of Cocks-foot grass (*Dactylis glomerata*).—(S. L. M.) *Larentia salicata* out, Shipley Glen.—(J. F.) This species was extremely abundant in 1879, but has been scarce since, and Mr. Butterfield makes the same remarks, with regard to its appearance in the neighbourhood of Bingley.

24th.—Oak fairly in leaf.

25th.—Saw and heard the Nightjar, Bingley.—(E. P. P. B.)

27th.—Took *A. badiata* and three *L. salicata*, Bingley.—(E. P. P. B.)

28th.—*Coremia ferrugata* out, Bingley.—(E. P. P. B.) Took two specimens of *Selenia lunaria* at Shipley Glen. Not common in this district; one taken at Hawksworth in 1878, and the two mentioned above are the only recorded captures. *P. petraria*, *E. albulata*, and *Y. impluviata* out, Shipley Glen.—(J. F. and J. W. C.) Sycamore in flower,

Ash in leaf; heard Landrail for the first time this year, Shipley Glen.

29th.—Took *A. menthrasti*, *O. bidentata*, and *A. myrtilli* flying freely in the hot sun.—(E. P. P. B.) *Eupithecia nanata* and *Cidaria corylata* out. Lily of the Valley (*Convallaria majalis*) in flower, in Bingley Wood.—(E. P. P. B.)

30th.—Found a Great Tit's nest, in a hole in an oak tree, containing seven eggs, and was built upon the nest of a Redstart, which contained three eggs. Took *E. lariciata*, *E. castigata*, and *E. vulgata*, Bingley.—(E. P. P. B.) *E. decolorata* out.—(J. A. B.)

31st.—*A. myanthidis* out, Bingley.—(J. A. B.) Took one specimen of *A. derivata* on St. David's walk, Bingley Wood.—(E. P. P. B.) An interesting addition to the lepidopterous fauna of Bradford and district; its congener, *A. badiata*, seems to be an exceedingly rare species here.

Throughout the greater part of the month the weather has been extremely fine and hot, and vegetation has improved very rapidly. The forest trees which were almost destitute of leaves at the end of April, have become clothed in their richest garb, and insects, hymenoptera, trichoptera, &c., have appeared in great numbers, in fact it has been like a sudden change from mid-winter to mid-summer.

"How many are so regardless,—take so little note of what passes around them, that they would go to their graves without discovering half the beauties of Nature, if no one unfolded its leaves for them; thus losing some of the purest pleasures the embodied soul is capable of enjoying, for want of an interpreter. Such interpreters, while they open to many a new and inexhaustible source of pleasure, are of great utility; and we must love and venerate the man who employs his talents in thus increasing the amount of human happiness."—ED. DOUBLEDAY.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with Figures from Life by S. L. MOSLEY.

(Assisted by Contributors to the Y. N.)

Family III, Erycinidæ.

There has been the usual diversity of opinion among authors as to the proper position of the insects composing this family. One proposes to include them with the LYCENIDÆ and another with the HESPERIDÆ. It is not fitting, in a series of Papers like these, intended only for beginners, I should attempt to discuss these differences of opinion at any length. My main object is to give such information as will enable thoughtful readers who have not access to many books, to form some opinion for themselves as to the correctness of the proposed arrangement. I cannot see the close alliance of the present group with the HESPERIDÆ that must exist if they could be included in one family, and they are also sufficiently distinct from, though certainly more closely allied to the LYCENIDÆ. The larvæ of the ERYCINIDÆ are short and broad, but cannot properly be called onisiforme (wood-louse shaped) as the larvæ of the LYCENIDÆ are. The larvæ of the HESPERIDÆ are long and cylindrical. The pupæ of all three Families are attached, like those of PAPILIONIDÆ, with a silk band across the middle. The larvæ of the HESPERIDÆ are often concealed in rolled up leaves, in which a slight cocoon contains the pupæ. It will be remembered that the NYMPHALIDÆ always have the forelegs of the perfect insect in a rudimentary or abortive state. The males of the ERYCINIDÆ have the same fan or brush-like fore legs, while the females have six perfect legs. It therefore appears that the natural place of the group is between the NYMPHALIDÆ and the LYCENIDÆ, having an affinity with the former in the perfect state and with the latter in both the larva and

pupa states, while with the *HESPERIDÆ* it has but the silken girt of the pupa to connect it, which also obtains with *LYCENIDÆ* and the first family, the *PAPILIONIDÆ*.

The *ERYCINIDÆ* are most numerous in tropical America, but several are found both in Asia and Africa, but only one in Europe, which occurs also in Britain. In Kirby's catalogue of Diurnal Lepidoptera he calls this group *LEMONIDÆ*, that of *ERYCINIDÆ* being pre-occupied. We have retained that most generally used. The curious genus *Libythea*, included by Kirby with the present group, has one European species *L. celtis*. It has a larva like those of the *Pierides*, a pupa suspended by the tail only, like the *NYMPHALIDÆ*, and the perfect insect has brush like fore feet in the male like the *ERYCINIDÆ*.

Genus 1, Nemeobius.

"NEMEOBIUS, Ste., *Nemœobius*; nemos, a grove, bios, life."—A.L.

A genus of but a single species which does not extend beyond Europe. It is a very interesting insect, being our sole representative of this important family.

LUCINA, Linn. Pl. 25, Fig. 1.

The Duke of Burgundy Fritillary.

"*LUCINA*, L. *Lūcina*, the goddess who aided women in childbirth.—Cf. Virg. Ecl. IV., 10."—A. L.

Imago.—Pl. 25, fig. 1. This butterfly has a general resemblance to some of the *Fritillaries*, hence its English name, being tawny with the veins and base darker, two irregular dark bands across the fore wing and one across the hind wing, breaking it up into tawny spots, giving it a "tessellated" appearance. The outer row of spots have a dark centre. The underside is much lighter in colour, though similarly marked. The hind wing has two bands of pale straw coloured spots. It cannot be mistaken for any other species, as its size at once distinguishes it from the members of the genus

Melitæa, which it most closely resembles. It expands about one inch.

Larva.—Short and broad, but not so flat underneath, nor so regularly oval shaped as to be properly called onisciform. It is dirty white in colour with rather a greenish tinge. Head brown, dorsal line indistinct and interrupted, at the segments on each side are some orange markings, and black dots. The spiracular line is greenish yellow, being yellowest near the anus. Spiracles black. It is well covered with hairs.

Pupa.—Short and stumpy. Colour pale yellowish brown, with numerous distinct black spots and marks. It is covered with hairs in the same manner as the larva.

Food Plants.—Cowslip and Primrose. (*Primula vera* and *acaulis*), Kirby adds "various species of *Rumex*."

Times of Appearance.—The butterfly is found on the wing in June, and the eggs are deposited on the underside of the leaves of the food plant. They hatch in about a fortnight, and feed up rather slowly, becoming full fed in September. The pupa is attached by the tail, and with a band of silk round the middle, to the underside of the leaf, and remains in this state over the winter. It has been once or twice known to produce a second brood in confinement.

Habitat.—*Lucina* is generally distributed over England, but does not occur in the two counties at the north-east boundary, Durham and Northumberland. On the other side, it has been found with in Westmoreland and Cumberland. It has not been found in Scotland nor yet in Ireland. On the Continent it is found generally in Central Europe extending into the southern portions of Sweden, into France, Spain, and the Northern parts of Greece and Turkey.

Variation.—Except that the ground colour varies a little in shade, and the dark marking slightly in extent, I have seen or heard of no variety of this insect, and there are no named varieties.

Parasites.—None known to me.

THE YOUNG NATURALIST.

E. G. MEEK,
NATURALIST,

56, BROMPTON ROAD, LONDON, S.W.

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The Young Naturalist:

AN ILLUSTRATED

Penny Weekly Magazine of Natural History.

CONDUCTED BY

J. E. ROBSON AND S. L. MOSLEY.

No. 85.

JUNE 25TH, 1881.

With Two Plates.

Part XIX., JULY (issued June 25) contains:—Obtaining Eggs from the Lepidoptera, 217. British Butterflies, with plate, 221, 229, 238. The Mole by *J. Osborne*, 222. Rearing Lepidoptera from the Egg, 225. The Pupæ of Lepidoptera, with plate, by *Joseph Anderson, junr.*, 228, 235. Chichester and West Sussex Natural History and Microscopical Society, 229. The Hobby, 230. A Bad Season, 233. "How the Weasel Sleeps," by *C. S. Gregson*, 235. Natural History Diary, by *J. W. Carter*, 237. Notes, Captures, Exchanges, Correspondence, &c.

NOTES, CAPTURES, &C.

VARIETY OF BUGLE.—It may interest some of your readers to know that I discovered the rare flesh coloured variety of the Common Bugle (*Ajuga reptans*) growing near Burnham Beeches, Bucks.—**A. DAVIS, Junr.**, High Street, Gt. Marlow, Bucks.

AGROTIS PRÆCOX. &c.—I have taken about two dozen of the larvæ of this fine insect this afternoon on the Sandhills, at Crosby. These larvæ feed on the Swallow at night and hide themselves beneath the surface of the Sand during the day time, from whence they have to be sought by raking about the food

plant. They have a way of feeding which I have not seen in any other larvæ; when they commence eating they quickly nibble through the leaf, (separating it from the stem,) and then devour the rest while holding it between their pro-legs. It is amusing to see the speed with which they bury themselves in the sand after being disturbed during the day time. I have just breed a fine specimen of *Z. filipendulæ* the cocoon of which I found about June 1st. Is not this very early? I saw a many of the larvæ not full fed yesterday.—**JOHN W. ELLIS**, Liverpool.

APPEARANCE OF LEPIDOPTERA.—May 9th.

R. crataegata; 12th, *S. ocellatus*; 14th, *A. Euphrosyne* and *A. menthastri*; 21st, *P. phlaeas* and *C. pamphilus*; 24th, *L. alexis* and *A. lubricipeda*; 25th, *Z. filipendula*; 30th, *T. tages* and *A. crataegi*; June 3rd, *P. linea* and *H. humuli*.—A. DAVIS, junr., High Street, Gt. Marlow, Bucks.

BOTANICAL DIARY (Continued from No 80, Page 204). The following are all dates of flowering. Ivy leaved Snapdragon (*Linaria cymbalaria*), May 6th; Creeping Bugle (*Ajuga reptans*), 7th; Tufted Vetch (*Vicia cracca*), 7th; Horse Chesnut (*Aesculus*), 9th; Early Orchis (*Orchis mascula*), 9th; Mayfaring Tree (*Viburnum Latana*), 13th; Mountain Ash (*Pyrus Aucuparia*), 13; Purple Clover (*Trifolium pratense*), 12th; Brooklime (*Veronica Beccabunga*), 14th; Hawthorn (*Crabæus Oxycantha*), 14th; Crimson Clover (*Trifolium incarnatum*), 15th; Maple (*Acer campestre*), 16th; Spotted Orchis (*Orchis maculata*), 16th; Comfrey (*Symphylum officinale*), 18th; Holly (*Ilex aquifolium*), 19th; Arrow Head (*Sagittaria Sagittifolia*), 19th; Bramble (*Rubus fruticosus*), 19th; Yellow Rattle (*Rhinanthus crista-galli*), 23rd; Gelder Rose (*Viburnum opulus*), 23rd; Fly Ophrys (*Ophrys muscifera*), 28th; Goosegrass (*Galium aparine*), 28th; White Bryony (*Bryonia dioica*), 28th; Dutch Clover (*Trifolium repens*), 28th; Charlock (*Brassica Sinapistrum*), 28th; Common Fumitory (*Fumaria officinalis*), 28th; Field Poppy (*Papaver Rhæas*), 28th; Man Orchis (*Aceras anthropophora*), 30th; "Birds Nest" Orchis 30th; Forget me-not (*Myosotis palustris*), 30th; Yellow Iris (*Iris Pseudacorus*) June 1st; Ragged Robin (*Lynchis Flos-cuculi*), 1st; Birds foot Trefoil (*Lotus corniculatus*), 2nd; Common Columbine (*Aquilegia vulgaris*), 3rd; Spindle-tree (*Evonymus Europæas*), 3rd; Dog Rose (*Rosa Canina*), 3rd; Elder (*Sambucus nigra*), 6th; Foxglove (*Digitalis purpurea*), 8th; Meadow Geranium (*Geranium pratense*).—A. DAVIS, Junr., High Street, Gt. Marlow, Bucks.

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1. The announcements will be confined to Books on Natural History or Scientific Subjects, Cabinets, Store Boxes, and other Collectors' requirements, either wanted, or to be disposed of.
2. An uniform charge of 4d. for 12 words will be made, and 1d. for every three words additional.
3. Where the address is published, the words of the address will be counted, and charged for.
4. Where the advertizer does not desire his address to be published, a number will be appended, and all replies to such advertisements must be sent with one stamp for postage to the conductors of this magazine, by whom they will be forwarded.
5. When an article is agreed to be purchased for Cash, the money may be sent in blank Postal Orders, to the conductors of the magazine, who will hold it until the article has been received, and found to be as represented, when it will be sent to the seller. One extra stamp must be sent for postage.
6. No trade announcement will be made under this head.

The Great Water Newt (*T. cristatus*) for aquaria, 1/- each, or 1/6 per pair.—F. LOCKWOOD, 172, Garnet Street, Bradford, Yorks.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 86.

JULY 2ND, 1881.

Vol. 2.

LIFE HISTORIES.

THE two papers, sent in response to our offer of a prize, for the best "Life History" of a British Mammal have been criticised by some of our readers as we requested. The general opinion is that neither paper can properly be called a "Life History." If Mr. Gregson will excuse us using his name we will quote his remarks on one of the papers, because it is exactly what we want to impress on our young readers. He says:—

"In No. 82 of the *Young Naturalist* is the second Essay on a British Mammal, the Mole (*Talpa Europæa*). Here we have a very nice modest paper on an animal little is known about, though the essayist says it has been carefully studied by many naturalists. Well, I have not seen these careful studies. I have seen quite a lot of twaddle, copied and recopied, but what you want is exactly what your essayist gives you of his own knowledge (I suspect)—with the addition of its Life History, how it reproduces, how long it carries its young, how many young at a birth, at what age it breeds, what it eats, what are its uses to man, &c., &c. Many practical naturalists do know a little about the mole—a very little—and perhaps I may say it is the most useful animal upon a badly drained farm that we have, because it always makes its runs empty themselves into

the very lowest part of the land, and its nest is placed in the highest portion of the ground; thus he not only helps by his mole hills to refresh the land, but he admits oxygen into the earth through his drains after he has drained the land. But it is not for me to give the life history of the mole, it is sufficient if it is pointed out to our young friends what is wanted in an essay or Life History of an animal to win the prize offered for the best Life History by the Editors of the *Young Naturalist*. Neither of these papers deserve the name of a "Life History," consequently no prize should be given. Let both try again. No. 2 is by far the best article, but every paper should describe the animal, size, shape, length of nose, ears, legs, tail, and particularly mouth, teeth, &c., in addition to the conditions named before. If we could get a few young observers to do these things, all the nonsense in our books, would soon be superseded by actual observation, and our young men would take first rank at once. The only conditions being, there must not be any speculations in Natural History. *Tell us only what you know*, and let somebody else fill in the desiderated knowledge when it is obtained."

We do not know that we could say what is quoted above, more forcibly, or in fewer words, and we particularly direct our readers attention to the suggestions as to what is needed in a "Life History." There is far too much truth in the remark that twaddle

is copied and recopied, and though this applies to other things besides Natural History, yet we doubt if any other science has been so abused by the attempts to popularize it. It was said of Oliver Goldsmith that he did not know a Goose from a Turkey, unless it was dressed and cooked, yet "Goldsmith's Natural History" is still largely sold, and though the fact that it was by Goldsmith is a proof of its utter worthlessness, there is no doubt that the name of the author largely helps to sell the Book. Perhaps the editions sold now-a-days may be purged of some of the grosser blunders of the original one, but there are few indeed of these so-called "Natural Histories" that do not teem with errors that have been copied and recopied till their origin cannot now be traced. There are plenty of observers now if they would only record what they see. A correspondent suggests that the reason we have few records of captures, is that beginners do not know the name of the species they take. Probably the reason we have few observations recorded is because Young Naturalists do not know which of the things they see have already been noticed, and thus many a valuable fact is never recorded for fear it is not worth publishing or has been printed before. Yet to work out a Life History, we not only want every thing of interest recorded, but we want to have such things recorded often, that we may know whether they are normal or abnormal, of regular occurrence or only

occasional. A person goes to Scotland and takes an insect there much darker in shade than specimens of the same species he had taken in England. He makes a record of the fact, and his specimen might be considered an abnormally dark variety. But other collectors go to Scotland, and they also meet with dark specimens, and eventually we arrive at the generalization that Scotch specimens of this species are darker. We have spoken in this strain before, but it cannot be too often repeated that it is not only by recording isolated facts, but by continuing to record every thing, that we learn whether the facts are isolated or not. We cannot generalize until a great deal of patient observation has been made. Whether the observations refer to the life of the most minute insect, or the largest mammal, their importance is probably equal, and if our Young Naturalists will learn not only to take notice, but to record all they notice, they will, as Mr. Gregson says, take first rank at once. One observation confirms another, and a matter that might be considered doubtful if only once noticed, becomes recognised truth when the observation has been often enough repeated.

EXCHANGE.

DUPLICATES.—Fine *Rurea* and var. *Combust*, *Thallasina*, *Gemina*, *Festiva*, *Augur*, *Tenebros* and many others. DESIDERATA LARVA.—S. L. MOSLEY, Beaumont Park, Huddersfield.

DUPLICATES.—Larvæ of *A. præcox* and a few *B. trifolii*. DESIDERATA.—Numerous.—R. A. FRASER, Seafield, Abbotsford Road, Crosby, near Liverpool.

Wanted ova or young larvæ of *Ocellatus*, *Filia*, and *Ligustri*. I will make a good return.—JOHN E. ROBSON, Bellerby Terrace, West Hartlepool.

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All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

J. H. J.—Your advertisement shall appear on our next monthly cover, on July 30th.

NOTES, CAPTURES, &C.

VARIETY OF BUGLE.—It may interest some of your readers to know that I discovered the rare flesh coloured variety of the Common Bugle (*Ajuga reptans*) growing near Burnham Beeches, Bucks.—A. DAVIS, Junr., High Street, Gt. Marlow, Bucks.

D. CONSPERSA AT HARTLEPOOL.—I took a specimen of *D. conspersa* the other night at the flowers of *Silene inflata*. I understand this is only the second taken in this district, and that it is nearly twenty years since the other was taken.—J. J. DIXON, Alliance Street, Hartlepool.

THE MOLE. — Confirming J. Osborne's remark that the Mole is very easily killed, I may state that one of my boys brought in a Mole to-day which his companion had killed by a single blow with his cap. It was in the act of devouring a dipterous larva, which was still protruding from its mouth.—JOHN E. ROBSON, West Hartlepool.

SUGARING AT WALLASEY.—I take the liberty of sending you the results of two nights sugaring on the Wallasey Sand-hills. Saturday, June 18th. The evening was exceedingly warm, and

hardly a breath of air was perceptible. There was no moon, though the sky was perfectly clear. My friend Mr. J. Bond accompanied me. We laid our treacles early in the evening, and a few Noctuæ turned up ere we had quite finished. The following were among our captures:—*Acronycta rumieis* (common), *Leucania comma* (one specimen), *Xylophasia rurea* (one), *Mamestra albicollis* (abundant, but very shy), *M. brassicae*, *Miana literosa*, *Grammesia trilinea*, and *Agrotis exclamatoris* in large quantities; *A. segetum* (one), *Triphana orbona* and *pronuba*, *Noctua plecta*, *N. C-nigrum*, *N. festiva*, *Hadena oleracea*, and a single specimen of *Hadena pisi*. A couple of specimens of *Heliothis marginata* completes the list. On Tuesday, June 21st, we again decided to try our luck, but we had hardly reached the Sandhills before the rain came down in torrents. After sundry heavy showers, we employed our time in searching for larvæ, for a strong wind quite shattered our hopes for a good night. *Rhodaria sanguinalis* was out, but not plentifully. Soon after dusk, the wind fell, and with refreshed hope we run for the treacling ground, where we arrived in time to find that a friend had been there before us, and monopolised the best part. So we had to content ourselves with the palings, on which we recklessly plastered our saccharine composition, with an utter disregard for clothing, for I afterwards had the pleasure of finding mine covered with drops of treacle, to which the sand had obligingly adhered. One specimen of *Grammesia trilinea* was seen on last Saturday's treacle mark, which, I have reason to believe, had not been since renewed. The Moths came in swarms, and we took all the insects before enumerated, excepting *H. marginata*, in very great abundance. *X. rurea*, var. *Combusta*, was likewise common. En passant, I might remark that Mr. Bond found a hedgehog (an animal that I believe is not abundant here) lurking suspiciously about the treacle. —CHARLES H. H. WALKER, 180, Falkner Street, Liverpool.

AGROTIS PRÆCOX, &c.—I have taken about two dozen of the larvæ of this fine insect this afternoon on the Sandhills, at Crosby. These larvæ feed on the Sallow at night and hide themselves beneath the surface of the sand during the day time, from whence they have to be sought by raking about the food plant. They have a way of feeding which I have not seen in any other larvæ; when they commence eating they quickly nibble through the leaf, (separating it from the stem,) and then devour the rest while holding it between their pro-legs. It is amusing to see the speed with which they bury themselves in the sand after being disturbed during the day time. I have just bred a fine specimen of *Z. filipendulæ* the cocoon of which I found about June 1st. Is not this very early? I saw a many of the larvæ not full fed yesterday.—JOHN W. ELLIS, Liverpool. June 20th.

APPEARANCE OF LEPIDOPTERA.—May 9th. *R. cratægata*; 12th, *S. ocellatus*; 14th, *A. Euphrosyne* and *A. menthrastri*; 21st, *P. phleas* and *C. pamphilus*; 24th, *L. alexis* and *A. lubricipeda*; 25th, *Z. filipendulæ*; 30th, *T. tages* and *A. cratægi*; June 3rd, *P. linea* and *H. humuli*.—A. DAVIS, junr., High Street, Gt. Marlow, Bucks.

BOTANICAL DIARY (Continued from No 80, Page 204). The following are all dates of flowering. Ivy leaved Snapdragon (*Linaria cymbalaria*), May 6th; Creeping Bugle (*Ajuga reptans*), 7th; Tufted Vetch (*Vicia cracca*), 7th; Horse Chesnut (*Aesculus*), 9th; Early Orchis (*Orchis mascula*), 9th; Mayfaring Tree (*Viburnum Latana*), 13th; Mountain Ash (*Pyrus Aucuparia*), 13; Purple Clover (*Trifolium pratense*), 12th; Brooklime (*Veronica Beccabunga*), 14th; Hawthorn (*Crabægus Oxyacantha*), 14th; Crimson Clover (*Trifolium incarnatum*), 15th; Maple (*Acer campestre*), 16th; Spotted Orchis (*Orchis maculata*), 16th; Comfrey (*Symphylum officinale*), 18th; Holly (*Ilex aquifolium*), 19th; Arrow Head (*Sagittaria Sagittifolia*), 19th; Bramble (*Rubus*

fruticosus), 19th; Yellow Rattle (*Rhinanthus crista-galli*), 23rd; Guelder Rose (*Viburnum opulus*), 23rd; Fly Ophrys (*Ophrys muscifera*), 28th; Goosegrass (*Galium aparine*), 28th; White Bryony (*Bryonia dioica*), 28th; Dutch Clover (*Trifolium repens*), 28th; Charlock (*Brassica Sinapisstrum*), 28th; Common Fumitory (*Fumaria officinalis*), 28th; Field Poppy (*Papaver Rhæas*), 28th; Man Orchis (*Aceranthopogon*), 30th; "Birds Nest" Orchis, 30th; Forget me-not (*Myosotis palustris*), 30th; Yellow Iris (*Iris Pseudacorus*) June 1st; Ragged Robin (*Lynchis Flos-cuculi*), 1st; Birds foot Trefoil (*Lotus corniculatus*), 2nd; Common Columbine (*Aquilegia vulgaris*), 3rd; Spindle-tree (*Evonymus Europæus*), 3rd; Dog Rose (*Rosa Canina*), 3rd; Elder (*Sambucus nigra*), 6th; Foxglove (*Digitalis purpurea*), 8th; Meadow Geranium (*Geranium pratense*).—A. DAVIS, JUNR., High Street, Gt. Marlow, Bucks.

THE PUPÆ OF LEPIDOPTERA.

By JOSEPH ANDERSON, Jr.

(Continued.)

The construction of the cocoon is very different, some being made of almost pure silk, which in other species is strengthened by finely gnawed portions of wood, particles of earth. There are others which content themselves with a leaf or two drawn together. The cocoons of some species are lined with the hairs of the caterpillar. A prominent example being that of *Acronycta Aceris*, which divests itself of all its beautiful tufts with which to make a soft domicile for the pupa.

The localities chosen for the act of pupation are exceedingly varied, some selecting the crevices of the bark in the trunks of trees, others burrowing into the heart of the wood and stems of plants. It is a curious fact that the imagines of all such internal pupæ are in the cabinet very liable to become

greasy. The pupæ of the Geometræ do not always undergo their metamorphosis beneath the soil, whilst the far larger number of the Noctuæ are subterranean.

The shapes and external appearance of Pupæ are very dissimilar. Those of the Sphingidæ are remarkable for the great development of the sheath containing the tongue. Certain species are covered with a delicate bloom, like that of a purple plum, as with *Diloba Cerulæcephala* and *Ciduria Psittacata*, and amongst the *Eupithecia* may be found really quite bright and striking curious net-work follicle, the colours and markings bear a great similarity to the perfect insect. The Pupæ of Noctuæ so closely resemble one another in many instances that it is well nigh impossible to pronounce upon the identity of the species unless the larva has been previously recognised.

The duration of the pupa state varies almost as much as the moths themselves. It is also influenced by external circumstances. *Cossus Ligniperda*, the Goat moth, having been known to remain in the pupa for six, seven, or even more years. This probably is the reason why some years one species may appear in abundance, as was the case with *Colias Edusa* in 1877, and *Plusia Gamma* in 1879. What these external circumstances may be, however, it has hitherto baffled all our investigations to discover. The period of the pupal state may be artificially extended or diminished, and the plan of "forcing" pupæ is one frequently resorted to by the collector. During the bitter weather which prevailed in January, by keeping some larvæ of the rare little *Acidalia Degeneraria* over the mantel-piece, I was able to get this species to feed up, pupate, and emerge in a fortnight or three weeks.

The third stage with lepidopterous insects is one of almost absolute quiescence, in fact, with the exception of a few wriggings with the tail segments, they are capable of no other movements. This statement must be

qualified though somewhat in the case of the internal pupæ of the *Sesidæ* and *Zeuzeridæ*, which are furnished with a series of hooks on each segment, by which means they are enabled to move up and down the hollow stems of the plants in which they have pupated and push themselves half through the hole of egress when emerging.

There is but one lepidopterous insect which can produce any sound audible to our ears, this is the *Acherontia Atropos*, or Death's Head Hawk moth. Till the year 1878, when the insect was more plentiful than usual, I had never heard the sound myself, although from time to time several specimens fell into my hands, and I began almost to question the veracity of the statement respecting it. In that year all my doubts were set at rest, for every moth that I possessed was a veritable "squeaker," and not only so, I had the good fortune to hear both larva and pupa likewise make this noise, which is very similar to, and quite as loud as, that of a mouse under the "tender mercies" of puss. Endless discussion has arisen, and is by no means at an end, as to the means by which the stridulation is produced. The favourite opinion is that "it is connected with a small membranous capsule which is situated on either side of the body at the base of the abdomen, and which is covered with some hairs that can be made to vibrate." If such be the case how are we to account for the identical sound made by the larva and the pupa, both of which are perfectly smooth and without hairs? I will only add that every time my pupæ were treated in their mossy blanket to a shower bath, they expressed their approval or disapproval with sundry squeaks, and that in the case of the imago I cannot help a suspicion that the sound is made by the proboscis, and my reason is this, when needing them for my cabinet, compelled to put them to death, I always caught hold of them at the base of the wings, so that they could struggle only with their legs, and the

wings being held tightly were prevented thus from damaging their beauty. To this retention they strenuously objected, vigorously protesting with a constant succession of loud squeakings, and the muscular power of the wings was such, that at times I could scarcely prevent the insect freeing itself from my fingers. Now whenever I pressed the tongue the noise ceased, commencing again as soon as the pressure was removed. Let me state that the moths were stupefied with chloroform, and then being conveyed in a comatose state to the ammonia bottle, died I trust an easy and painless death. There is a curious superstition in the New Forest that the Death's Head moth was never seen in England till after the execution of Charles I.

There are few methods of collecting more profitable to the Lepidopterist than the acquisition of pupæ. The trouble necessarily attendant upon the rearing and feeding of the larvæ is dispensed with. Once safely placed in a position of security, they require no more attention, and the imagines are procured in a condition of prime beauty. Pupæ are to be sought for in divers situations, autumn being the best season in which to look for them. Under moss, on the trunks of trees, on lichen-covered palings, under walls, some will be sure to reward the careful investigator. But perhaps no way of obtaining them is attended with so much success as by digging at the roots of trees. Amongst these the oak and elm are found the best; the last in point of numbers, the oak in yielding the best and rarest species. During last autumn my brother, some friends and myself in this way secured several hundreds of pupæ.

I must now bring these few notes to a conclusion, hoping that they may not have been without some interest, even to those who care but little for the study of insect life; for the contemplation of the sombre pupa with its sleep of apparent death, presently to give birth to a creature radiant

with beauty, cannot but give rise to high and holy thoughts.

Mr. Bignell has very kindly called attention to a passage in my paper on this subject, liable to be misunderstood. It is this:—"Pupæ, as do larvæ, breathe by means of spiracles, which are situated on either side, and in every segment but the first and thirteenth." It would have been better had I written—Pupæ, as do larvæ, breathe by means of spiracles, which are situated on either side. In pupæ there are spiracles between the pro-thorax and meso-thorax, and on all the segments of the abdomen but *the first and last*.

Mr. Robson directs my attention to the fact that *Satyrus semele* has a subterranean pupa. "There is no rule," it seems, "without an exception." Newman also states that a larva of *Thecla quercus*, which he had, retired *just below* the surface of the earth, and then turned. It is to be remarked that in both cases, recorded in his "British Butterflies," of *Semele* and *Quercus*, these observations were made from insects reared *in captivity*. It will be very interesting to me, and doubtless many others, to know whether the same thing obtains in a state of nature, and also if these are the only two instances of the larvæ of butterflies going beneath the soil in order to pupate.

THE FOUR SEASONS:

A Story from the Book of Nature; by
LUCY FERN.

Chap. XIII.

CONCLUSION.

Now it is getting towards the end of January. Long storms and howling winds have been frequent of late, and while many a family have sat comfortably by their own fireside, the pelting sleet has been driven in gusts against the window panes. Alas!

some have had no comfortable fireside of their own, and have had to shiver by some way-side seeking the charity of passers by.

See here is one. You wonder who or what he is. Well, I will tell you. This man went to school at the same time, and was in the same class as our familiar JOHN. He had the same chances in life as he had, and might now have been, if not in as good a position, at any rate, comfortable. When he arrived at manhood he was to be found horse-racing, betting, and drinking; his sense of honour by degrees left him altogether, from the race-course to the pothouse, and from the pothouse to the prison, we find him at last a ruined man, cared for by none, but despised by many.

But let us see how old WINTER is getting on. He is just taking a handful of snow into the house. "John," says he, "bring out that microscope, and let us see what this is like."

So a portion was put under the glass, and it was found to be composed of the most beautiful six-rayed crystals of various forms, but of the most symmetrical beauty.

"But here are some red spots which I do not understand," said JOHN.

"Let me see," said the old man, "O, yes, I dare say these are the same things which make the snow so red sometimes in northern regions. I have been told that it is a small plant called *Protococcus*."

"Well," said JOHN, "I dare say it is, you know we have a similar plant here, only it is green, and is also called *Protococcus*. It is that green film which you see covering damp walls, &c. Very few people suppose it is a plant, but it is just the same as these single cells."

A few days after this the ladies had been out for a walk through the woods, and had found the first 'moth of the year—*Phigalia pilosaria*, for now the snow was gone again, and the weather was calm and mild, robins and missel thrushes had begun to sing, insect life had begun to put in an appearance, and out in some warm quiet nook or corner could

be found a solitary daisy or primrose, sending forth its blossoms as the advent of approaching warm weather.

Reader, with this we leave the party whose acquaintance, in one way or another, we have so long enjoyed. It is hoped that you have seen how happy a life can be made by the simple study of the grand works of nature. Through every season of the year there is some object of interest to be gathered—something to be learnt.

"'Tis holy exercise of mind,
Most valued by the most refin'd."

To go out and gather flowers by the way side, to peep into crannies and crevices in search of insect treasures, to view the whole landscape with the eye of a naturalist leads up the mind from a path of narrowness to one of broader comprehension. Whenever did anyone meet with a naturalist who would not say that the happiest moments of his life have been when he has been out in the balmy air of the country, seeking the objects of his study. It gives health, it lengthens life; it is a study adapted to both sexes. The happiest moments of childhood are when they are out in the fields making garlands of buttercups and daisies; youth should find an equal pleasure in learning something about their structure, and their names. How often young people go out for a quiet walk, and how these walks might be made happier, and the persons wiser if they would learn the alphabet of the Book of Nature. It has been my object so to induce young persons to read, and if by these few stray notes, if by this random story, I have succeeded in lightening one sad heart, all the labour I have bestowed will not be begrudged, but I shall consider myself amply repaid.

Reader, I bid thee farewell; we met friends, and I hope we part friends dearer still. Thy wish and mine are both the same, but to diffuse a taste for nature we must show its advantages to persons who have yet to begin at the A, B, C.

THE END.

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The Young Naturalist:

A Penny Weekly Magazine of Natural History.

No. 87.

JULY 9TH, 1881.

Vol. 2.

SCIENTIFIC NAMES.

NOTWITHSTANDING all that has been said, we still receive letters from readers who complain of the constant use of Latin names, especially for insects. One gentleman, who writes us a long letter on the subject, tells us we have "missed our vocation," and that we will never succeed in popularizing Natural History unless we change our method, and use English names only. He defends his position by various arguments, most of which appear to us to tell against him rather than for him. Another old friend makes the same complaint, but from a different standpoint. He has taken to Natural History from a natural taste for it, and living in a small village where there is no one of kindred pursuits, he has collected eggs, and birds, and insects for years, with very little communication with anyone. He tells us he is too old to learn the Latin names, and, without any sarcastic meaning, says he has no doubt our paper is very interesting, but he very seldom can make out what it is about. We are, however, glad to say, we have

had no complaints on this score from that much more numerous class of readers who are "Young Naturalists" both by reason of their age, and by being beginners. The subject is really not open to discussion, for there is and can be no doubt, that if our readers want to be "Naturalists" they must learn to call the objects of their study by the names by which other people know them. Whether we have mistaken our vocation or not, one thing is certain, that if we cannot attain our object by the use of the scientific names, we will never be able to attain it at all, and it appears to us that what we really have to convince these friends is, that they have capacity enough to use the Latin names if they only would. Standing the other day at a street corner, waiting for a friend, we listened with some degree of interest to the earnest and excited conversation of some dozen idlers, who were standing about. The subject was horse-racing, betting was going on, and the names of horses were being freely bandied about. This is a matter on which, we must confess, we are not sufficiently versed to write freely, but

as we listened to these illiterate pot-house frequenters, we could not but think of the difficulties that would be raised if such names were given to insects or birds, or other objects of Natural science. We jotted down as we stood there "Melodius," "Typhon," "Mycenæ," "Ridotto," and a special subject of conversation was a recent trial in which a horse called "Bend d'or" had been concerned. Some names were even more puzzling than these, but we could not catch them. But if men like these, a poor sample even of the betting fraternity, can learn such names as we have given, surely our readers can do as well, or better. Betting-men neither need to be classical scholars, nor good linguists, to use the names given to horses, why should naturalists think they cannot use scientific names with advantage because they are not deeply read in Greek or Latin. "Bend d'or" could easily be translated into English. Other words could be substituted for classical names or foreign ones, but illiterate and utterly ignorant as many betting men are, the objection is never raised that they cannot follow their fancy, because of the difficulty of the words. Let us then have no more of such objections. We want our readers to know what other people know. We want them to know what other people mean when they record what they are doing. We certainly desire to make their early steps easy, and to encourage them on their way by removing difficulties, but we do not want to take away from

them what is absolutely necessary for them, just because it is not easy. We may try to put the pill into a spoonful of preserve, but we do not think of taking away the pill altogether, and only giving the sweet stuff. One mother teaching her child to talk will imitate the child's mispronunciation, another will repeat the words properly—plainly and distinctly as possible, but correctly pronounced. Which child is likely to learn to talk soonest, and to speak best. Our own children have been accustomed to hear insects, plants, &c., spoken of by their proper names, and they know far more of them by these scientific titles, than most of children know by English names. They can name at sight all our common butterflies and moths, while their companions scarcely know one from the other, and call all stout bodied moths "loggerheads." Even little three-year old came running in last autumn with a caterpillar in her hand, saying "I've dot a *pisi* for Da." Was that not easier even for her little tongue than to put the same into English.

EXCHANGE.

DUPLICATES.—Larvæ (full fed) of *N. Zonaria*. DESIDERATA—British or Exotic Coleoptera.—JOHN W. ELLIS, 101, Everton Road, Liverpool.

DUPLICATES.—*Io*, *Atalanta*, *Polychloros*, and many others. DESIDERATA Larvæ of Hawk moths and other showy things for public Insectorium.—S. L. MOSLEY, Beaumont Park, Huddersfield.

I should be much obliged for a healthy larvæ of *Charza graminis* for figuring. I will endeavour to make a good return.—C. H. H. WALKER, 180, Falkner Street, Liverpool.

I have duplicates of the following for exchange *H. velleda*, *V. cambrica*, *A. fumata*, *L. cæscata*, *F. pinaria*, Desiderata numerous.—E. P. P. BUTTERFIELD, Wilsden, nr. Bingley.

DESIDERATA.—Imagines of any of the "Skippers." I will make a good return.—JOHN E. ROBSON, Bellerby Terrace, West Hartlepool.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

EXCHANGE CLUB.

Several of our friends have written saying their lists are ready, and others have made enquiries as to the conditions on which they may join. Whether with the anticipated number of new members, we may be able to send out marked lists or not we cannot yet tell, but if all those who desire to join will communicate with us, we will know better what to do. The conditions of membership are, that each one sends what he desires to exchange, to Mr. J. E. Robson, Bellerby Terrace, West Hartlepool, accompanied by a marked list of desiderata, and a stamped directed label for the return of the box. If sent by Rail the carriage must be paid by sender. Return parcels will be sent off as early as possible, and will contain as many of the desiderata of the member as can be sent. Thanks to the liberality of friends desirous to assist, all our members last year considered they had got the best of the transaction. Several local species are already at the disposal of the club without return, but though we hope always to do as well for our members, we do not wish any one to calculate on getting more or

better specimens than they send. We desire to encourage them to help each other rather than to bargain. Any friend, willing to assist the club, by sending specimens of local insects for distribution, will please forward as above, and we will pay postage of their box both ways, and acknowledge their contributions in these columns. We omitted last year to thank Messrs Carter and Firth, of Bradford, and the Rev. J. Johnson, of Denby, near Huddersfield, for their assistance. Those who desire to exchange Shells or Eggs must not send without first informing us what species they have to offer, as our applicants for these are but few at present. One or two desire to give Lepidoptera for Eggs, &c.

CORRESPONDENCE.

Sir,—As Mr. Walker's remark (Y. N. p. 243), "Soon after dusk we ran for the treacling ground, where we arrived in time to find a friend had been there before us, and had monopolised the best part" refers to myself, and as it might be understood to mean a want of fair conduct on my part, will you kindly allow me the opportunity of an explanation. I was unable to leave home that night until 7.30, then had half an hour's walk to the boat, and three miles to walk on the Cheshire side, and I quite expected to find that Mr. Walker, if there, would have finished sugaring, as he leaves town about 6 p.m. After sugaring my favourite ground, the plantations bordering the sandhills, I paid a visit to what Mr. Walker calls the best part—about a half a dozen trees standing apart from the rest, and as I found no sugar had been put on them I was justified in concluding that Mr. Walker had not put in an appearance, and so I sugared them. I had just strolled away from my first ground when Mr. Walker and his friend turned up. The blame was clearly his own, he ought to

have been on the ground earlier, as it was full late—9.0 p.m. when I arrived.—Yours truly,
(Dr.) JOHN W. ELLIS, 101, Everton Road,
Liverpool.

NOTES, CAPTURES, &C.

CAPTURES AT CROMLYN, IRELAND.—I have been unable to collect except in the evenings in the garden, where we have taken a good many *V-aureum*, only 1 *Barctea*, 2, *Batis*, 1 *Conspersa*, fine, and 4 *Elpenor*. These are the only insects worth capturing, *Rurea* and *Gemina* swarm, and I should fancy it rather a good season for any one able to collect regularly, though we have very uncertain cold and wet weather.—Mrs. BATTERSBY, Cromlyn. June 24th. 1881.

MUSHROOMS have been coming up in our fields for the last fortnight. We have never before found them till the end of August or beginning of September. Is their appearance general this year?—R. PRESCOTT DUCIE.

BRITISH BIRDS, THEIR NESTS AND EGGS.

S. L. MOSLEY.

10, MERLIN.

Falcon æsalon, Gmel.

Stone Falcon (Devon &c.)

Rochier (France),

Steinfalke (Germany).

Dvergfalk (Sweden).

Tsitsaschfalle (Lapland).

Ponta Haukka (Lapmark).

Corwalch } (Anct. Brit.)
Llynysten }

ÆSALON.—A species of Hawk mentioned by Aristotle, probably the Merlin or Sparrow hawk.

Size.—Male, length 11 in. or 12 in., expanse a little over 2 ft. Female, length 12 in. to 14 in., expanse, about 2 ft. 4 in.

Plumage.—The adult male has the crown of the head, and the whole of the

upper parts clear slaty blue, each feather having a narrow black, or dark line down the centre; tail bluish-slate, with three darkish bands, the lowest one being the broadest, and the tips white. The primaries are nearly black. Over the eye is a pale stripe. Throat white. Sides of neck and belly tinged with reddish, the latter with longitudinal stripes of dark brown. Bill bluish-black; cere and legs yellow; eyes dark, but said to vary in colour.

THE ADULT FEMALE has the upper parts ashy-brown, in very old birds sometimes strongly washed with light slate-blue. The general tone both above and below is lighter than in the male. The tail has fine narrow bars.

The lower figure is from a specimen in my own collection, killed on the Yorkshire moors.

WHEN IMMATURE the males resemble the females in colour only darker, the blue-back not being fully attained till the third or fourth moult.

THE YOUNG in down are similar to those of the Hobby.

VARIETIES of this species are very rare. A Hawk is described and figured at page 193, vol. V., of the old "Naturalist," by the late Dr. Hobson, of Leeds, having the wings, under parts, throat, and a patch behind the head white, but the rest of the colouring so abnormal as to render the identification of the species difficult. Probably this is a variety either of the Merlin or the Hobby.

Note.—The voice of the Merlin is not unlike that of the Kestrel, but weaker.

Flight.—The flight of the Merlin is generally low, coursing along hedgerows, or bank sides. When crossing from one part of the country to another, or when in pursuit of its prey, it flies with exceeding rapidity, its victim doubling and turning in vain endeavour to evade its pursuer.

Migration.—No doubt the Merlin is partially migratory, breeding in the north, and moving south on the approach of winter.

Food.—This daring little falcon is re-

markably courageous in pursuit of its prey, which consists of small birds, such as larks and thrushes. But it will also attack game as large as partridges or ptarmigan, so bold and fearless is it. Thompson says that in Ireland it frequents the seashore in pursuit of dunlin, and other shore birds. It does not ascend and strike its victim from above, as is the case with the Peregrine and others, but gives chase, and captures its prey by excess of speed. It will also feed upon cock-chafers, and probably other large insects.

IN CONFINEMENT it is easily tamed. Mr. Lloyd had one which he shot and winged. He kept it in a walled garden for some time, and it soon learnt to come to its name, to follow the gardener, and pick up earth worms which he turned up with his spade.

Habitat.—This species breeds in Scotland, in several parts of Ireland, and also in the north of England. In the south it occurs as a winter visitor. It frequents the high moorland districts, and seems particularly fond of sitting on the isolated blocks of stone found in such localities.

ABROAD it is met with nearly all over Europe, common in the northern parts; even, according to Temminck, within the Arctic circle. It is also found in various parts of Asia and Africa, but in the New World its place is supplied by a nearly allied species—*Falco columbarius*.

Nest.—The nest of the Merlin is generally placed upon the ground among heather, Hancock says, preferring a sloping ground among large tumbled stones. He mentions one pair which occupied the nest of a crow, and Montague mentions a similar instance. In Lapland and other countries it occasionally builds in trees, but in Orkney and Shetland it places its nest on the face of precipices. The nest when placed on the ground is very slightly made of sticks, lined with a little wool or grass,

Eggs.—The eggs, from four to six in number, are laid about the first week in June. Mr. Wheelwright says in his "Spring and

Summer in Lapland," "when first laid the eggs of the Merlin have a beautiful violet-red tinge with red-brown spots; this, however, soon fades, and they assume a red-brown ground colour, with dirty brown spots. Some very nearly approach those of the Kestrel, but are generally rather smaller, and finer in the markings."

REVIEW.

We have received the "Official Catalogue of the Mechanics' Institute Collection of Birds in the Bradford Public Free Art Museum." Such exhibition of specimens, open to public inspection, are always of the greatest utility, especially when free. In some cases, when the institution is not supported at public expense, it is necessary to make a small charge for admission, to which no one would object, but in either case such collections and museums tend very greatly to people's enjoyment, but let anyone call back his feelings after walking through a museum, and ask himself the question—did he not feel happier, did he not feel more enlightened, more a man for what he had seen. It is therefore with the greatest pleasure that we hail every new project of this kind, because we think they are calculated to create a more thoughtful, a better, and a more sober generation. We would like to say a word or two on the get-up of such catalogues as these. The one before us is not arranged in scientific order, which we think is one defect. There is a copious list of synonyms, English and scientific to each species. These we think is hardly necessary in a catalogue intended for the public, which generally do not take an interest in hard scientific nomenclature. We think a catalogue intended for the public, if it contains anything more than the mere names of the objects, should contain some popular information. We take an example from the catalogue to illustrate our meaning,

SHORT-EARED OWL.

Woodcock Owl, Short Horned Owl, Hawk Owl, Mouse Hawk.

Dylluan Glostiog, of the Ancient British.

Strix brachyotos Montagu, Bewick.

„ *ulula* Latham.

Otus brachyotos Selby, Gould.

Strix, a kind of owl. *Brachyotos*, *Brachūs*, short, *oue* (plural *ota*), an ear.

This, if put upon the case, would be very useful for students, but for the general public we would amend it something in the following manner,

Short Eared Owl (*Strix brachyotos*) male (or female).

“Not uncommon, especially in the eastern and southern counties, from April to October. Feeds on small birds, rats, mice, &c. Useful in clearing off vermin.”

This, we think, would be of more general interest, and would convey to the person possessing the catalogue a great amount of useful information.

A BOTANICAL RAMBLE IN TEESDALE.

By DR. JOHN W. ELLIS.

Having arranged to spend a week's holiday with my respected friend, H. Ecroyd Smith, of Shotley Bridge, in Teesdale and the neighbourhood, I found myself on Sunday morning, July 23rd, 1876, at Riding Mill Station, on the Carlisle and Newcastle line, with a walk of nine miles before me in order to arrive at my destination. After tramping about half-way I was delighted to see my friend who had come to meet me, and after the usual congratulations, &c., we decided to turn a little out of our direct way in order to see some of the views of the neighbourhood. On the roof of an outhouse, close to a ruinous old Church perched upon the summit of Gregmare Hill, and which forms a landmark visible from a great distance around, we found our first botanical specimen worth bagging,—this was the white stone crop (*Sedum album*) and just before arriving at

Shotley Bridge, we found by the side of a pretty brook—the Shotley Burn—specimens of the oak and beech ferns (*Polypodium Dryopteris* and *P. Phegopteris*), growing in greater luxuriance than I have ever seen them. The day turning out wet after our arrival, we stayed in the house the greater part of the time discussing our projected excursion.

The following morning we set off for a ramble up the valley of the Derwent, which passes through Shotley, and separates the counties of Durham and Northumberland. By the side of the river we found the wood betony (*Stachys betonica*) growing plentifully, and I was delighted, not having been in a limestone country before, to find the Blue meadow crane's bill (*Geronium pratense*) in profusion. I afterwards found this plant whenever the limestone showed itself. In a wood on the right bank of the river we found several good plants, e.g. *Listera nidus-avis*, *Epipactis latifolia*; the purple cow-wheat (*Melampyrum arvense*); *Pyrula rotundifolia*; the Enchanter's nights shade (*Circea lutetiana*), &c. After enjoying a refreshing dip in the crystal waters of the river, and hunting for amethysts among the pebbles in its bed, (of which we found a good number), we still followed the river through thick woods, where we found the finest *Blechnum boreale* (the Hard fern) I have ever seen; also a few plants of *Equisetum sylvaticum*. After leaving the woods we plunged through a dense thicket of meadow-sweet—many of the stems being five feet high, and bearing such a profusion of flowers that, not being Longicorns, we were almost suffocated with the concentrated perfume. After several times crossing the river by stepping stones, we ascended a steep bank on the Northumberland side of the river, and having arrived at the top we had (in addition to lunch) the most charming view possible. The river Derwent, which here forms a horseshoe-like loop, is bounded on the opposite side by lofty precipices, in many parts covered with vegetation, but oftener showing huge buttresses of rock

jutting out from the surrounding herbage. We turned our way homewards with regret at having to leave such a charming spot, and after several times losing ourselves in the woods—where we found *Paris quadrifolia* and the frog orchis (*Habenaria viridis*)—found ourselves ready for something substantial in the way of dinner-tea-supper.

Next morning found us *en route* for Teesdale—taking train to Etherley, arriving there about 7 a.m., and walking through the villages of Witton Park, Etherley, and Evenwood, and finding our way from the latter to Raby Castle, where we arrived about noon. After admiring the beauties of the castle, which boasts of the finest Baron's Hall extant, and where also, in the octagon drawing room, is the celebrated original of the "Greek slave" by Hiram Power, we wended our way to Staindrop—calling in for lunch at one of the lodges of Raby Castle, attracted by a "notice to travellers" that gingerbeer, was supplied there. After a short stay in Staindrop we walked on to Winston—finding by the road side some fine specimens of the Musk mallow (*Malva moschata*). From Winston Bridge we obtained our first view of the Tees, and in a plantation by the bridge we found the Giant Bell flower (*Campanula latifolia*) in abundance and a few plants of the wood vetch (*Vicia sylvatica*). At the village of Ovington, where we put up for the night, we had to make our meals off unleavened bread, owing to a great scarcity of yeast in the neighbourhood, but, answering for myself, it did not interfere with a good night's rest. Before going to bed, however, we went down to the Tees, and found a few specimens of *Mimulus luteus* (the monkey flower) growing in crevices of its rocky bed. This bed, which is of limestone, is cracked and fissured in curious rhomboidal forms, and in the cracks we picked up a good many rings of Encrinurites—a fossil sea-lily which abounds in the limestone. As the centre of each joint is softer than the circumference they soon become perforated, and so used to be worn

as charms under the name of "St. Cuthbert's beads."

After breakfast next morning we took the road to Barnard Castle, in a downpour of rain that continued almost without intermission until evening. After passing through the village of Wycliffe, which gave its name to the family of the illustrious reformer, we arrived at Greta Bridge, rendered famous by Dickens's "Dotheboy's Hall," in "Nicholas Nickleby." It is said that, although the illustrious author disguised the name and place of abode of the original "Squeers," a person who kept a school of the description, finding, I suppose, that the cap fitted himself, actually brought an action against Mr. Dickens, in which, of course, he came off second-best. At the junction of the pretty river Greta with the Tees we found a bush of the Wild Mountain Currant (*Ribes Alpinum*). A short distance above the mouth of the river is the pretty Mortham Bridge, after crossing which we had a fine view of Mortham Tower, in Rokeby Park, in the grounds of which we found the "Mortham tomb, originally brought from Egglestone Abbey, and behind which Scott makes Philip of Mortham to have stood when he frightened the boy Wilfred and Bertrand Risingham, when on their way to claim the treasures of Rokeby Hall. (Rokeby, Canto II.) After having a good view of Rokeby Castle, we crossed Egglestone Bridge, where I saw my first specimen of the Brittle Fern (*Cystopteris fragilis*). After crossing the bridge we had a fine view of Egglestone Abbey, soon after which we entered Barnard Castle, very wet, and very hungry. Our quarters for the night were near the celebrated clock, whose face was 9 feet in diameter, which belonged to one Master Humphrey, and which, being seen from the "Angel" opposite by Charles Dickens, led to a visit, and the subsequent title of his (then) new novel, "Master Humphrey's Clock." The clock is now in Philadelphia.

(To be continued.)

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The YOUNG NATURALIST :

A Penny Weekly Magazine of Natural History.

No. 88.

JULY 16TH, 1881.

Vol. 2.

SUGARING.

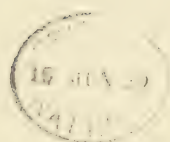
TWO paragraphs that have recently appeared in our columns recal to mind an old controversy on the *Laws of Sugaring* in the pages of the "Intelligencer." Enquiries also have been made more than once on the subject, and some correspondents seem to think there must surely be some laws for the purpose of regulating the doings of the intoxicator of insects, as there is for those who intoxicate human beings. But we fear if there were laws for sugarers, they would not be much more successful in their operation than the others to which we refer. No doubt it is very discouraging for the collector to find, after a long journey to the ground he purposes to occupy, that some one else has been before him, and that "his trees" are already bedaubed with the attractive sweets. We doubt, however, whether any action would "lie" against the first occupant, and in face of the maxim that "possession is nine points in law," we certainly would not be disposed to give up our sugar to any later comer. Still it is worth considering whether it would not be better to admit our dilatory friend to a share of what was going, when we were in the field before him, if for no

better reason than that he might be before us another time. It is a curious and puzzling fact, that gentlemen, who will *give away* valuable insects without thought of return, even to those who are perfect strangers to them, will appear sometimes to be exceedingly selfish in their desire to obtain those very insects that they will afterwards part with so willingly. Where collectors are few, and trees many, it will never occur that one will have his journey in vain because he came late. There will always be some trees to spare for him. But there are some places, where trees are few and collectors numerous; some places indeed, there are where there are no trees at all, and unless some good feeling, or good understanding prevails, there is pretty sure to be the opposite. The writer was in the habit of sugaring for years on a piece of ground where there were no trees, and nothing but a fence of posts and rails on the railway side, where sugar could be applied. Moths were abundant, and three collectors at least found this the most convenient ground for their purpose. By mutual understanding, one took one side of the railway, and another the other; then beyond a certain limit a third had unin-

terruted control. We never had a disagreement or an unpleasant word. Whether we went together or separately we each filed off to our own quarters, and worked away till time for returning, when we had a pleasant chat on the evening's doings as we trudged home in company. We nearly always got as many insects as we wanted; and was not this a pleasanter and better way than for a late comer to find all occupied, and that he must either return home with empty boxes, or go further afield. Each of us thought our own special ground better than the other's, and the writers experience is, as has been said before, the best ground is that most convenient of access. Of course, if you want a certain insect, you must go where it occurs, but when sugar is productive, it is generally productive everywhere, and the most convenient place is the best. If we are not mistaken, it once happened that a gentleman was sojourning in the New Forest, and that at a certain hour he went home, leaving another collector on the ground. The one who remained, took shortly afterwards, on the sugar spread by him who had gone home, a fine specimen of *Ophiodes lunaris*, one of the greatest possible prizes. This must have been terribly annoying, and on the principle of locking the stable door when the steed is stolen, we have no doubt he who did not get *lunaris*, would stay later at sugar for the future. The gossiping remarks with which we often fill up our front page are always intended to serve a purpose. We wish to promote among col-

lectors a feeling of mutual good will, of desire to help each other in every possible way, and we are pleased to know not only that no unpleasant personal remarks have found their way into our pages, but we know also, none such have been sent to us. The notes of Mr. Walker and Dr. Ellis on the subject we are writing on to-day, are just what they ought to be. No angry feeling or soreness. One was late, and what he thought the "best ground" was occupied, so he contented himself with what was left. One was early, and did not go to the ground of the other until it was so late that he thought he was not coming at all. We notice also that each collector thinks his own ground the best and this, too, is just as it ought to be. If similar good feeling and forbearance prevail everywhere, there will be no need for "laws" for sugarers. The old law used to be that "they shall take who have the power, and they shall keep who can." But things are different now and one great use of our paper is that he who takes, may help others to take also; and he who has more than he needs, shall not keep them, but oblige some less favoured collector, who will also be able to repay the kindness in the same way.

NOTE.—Dr. Knaggs (Guide, p. 99) says:—"In the neighbourhood of large towns the beat which the collector has baited is considered his for the evening only, but in large forests or other localities where there is unlimited space for the selection of suitable spots, the beat chosen is retained by the same collector during the whole of his sojourn," &c.





- | | |
|---------------|---|
| P. Hippothoe. | 1 |
| " Phlaeo | 2 |
| L. Egon | 3 |
| " Agestis | 4 |

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y.N.)

DISPAR, Hw. Pl. 20, Fig. 1.

The Large Copper.

"**Dispar**, Ha., *Dis'par, dispar*, unlike; on account of the disparity in appearances of the sexes." A.L.

Imago. Plate 20, fig 1. Male, bright coppery red, with a narrow black hind margin and a black spot in the centre of both wings. The female has one or more black spots on the forewing, nearer the base than the central spot, and a row of seven between it and the hind margin, which is broader black than in the male. The hind wing of the female is much suffused with black scales, except on a narrow band next the hind margin.

Larva.—Onisciform, "green, with darker dorsal stripe, and one paler stripe on each side (*Freyer*)."
Stainton's Mannel.

Pupa.—"Obese, blunt at both extremities, attached by minute hooks at the caudal extremities, and also by a belt round the waist." *Newman.*

Food Plant.—" *Rumex hydrolopathum* (great water dock) and *R. aquaticus*." *Stainton's Manuel.*

Times of Appearance.—The Butterfly used to emerge in June or July; the 25th June being the earliest authentic date I have seen recorded. The egg was laid in July or early in August, and the larva hibernated small, reappearing in spring to feed up by May or June.

Habitat.—Haworth states this species was first found in Wales, by the Botanist

Hudson, but the localities known with any certainty were Whittlesea Mere in Cambridgeshire, and Yaxley Fen in Huntingdonshire. It is easy to see that an insect, hibernating in the larva state, on a water plant, is liable to be destroyed whenever the food was submerged. Mr. H. B. Hodgkinson, of Preston, states in the *Entomologists' Weekly Intelligencer*, for 1858 (Vol. iv. page 10), that he has seen this species "in Cumberland, have taken a very deliberate look at it, and lost it after all"; and Mr. W. Winter, of Ranworth, on page 131 of the same volume, under date of June 20th, says: "This species has again appeared in the fens here; I saw four yesterday, but missed them all." One is recorded (*Ent.*) as having been seen on Hackney Marshes about three years ago. If insects that are *seen*, and not captured, are to be taken into serious consideration, we shall certainly have to admit *Parnassius apollo* to our lists, which has been *seen* often enough (see Y. N. vol. i page 293). Mr. Hodgkinson gives no date, by Mr. Winter's date (19th June) is earlier than the earliest authentic record I have met with. In Kirby's catalogue, the *Dispar* of Haworth is supposed to be confined to England. Dr. Staudinger's catalogue also gives the type as having occurred only in England, but he gives a variety *Rutilus*, Wernb., which is said to be smaller, and to have smaller spots, and is found in France, Germany, and South and East Europe. This I expect is the full range of the species abroad.

Variation.—The variety *Rutilus* has been already named. Specimens of this form and of the British type vary in size and distinctness of the black spots, and the amount of suffusion on the hind wing. A female in Mr. Dale's collection is nearly black, and a specimen in Mr. Sidebotham's collection seems to approach the var *Schmidtii* of *Phlaeas*, having the forewing inclining to silvery towards the hind margin.

PHLÆAS, *Linn.* Pl. 20, fig. 2.

The Small Copper.

"PHLÆAS, 2, *Phlaas*, a surname of Venus, perhaps connected with Latin *flos*, English bloom." A.L.

Imago.—Plate 20, fig 2. Bright coppery red, with numerous nearly square black spots, costa and hind margin bordered with blackish. Hind wing blackish bronze with a bright coppery coppery red band before the hind margin.

Larva.—Onisciform, green, a deep red dorsal stripe and a pale red mark along the side where it projects over the legs. Sometimes it is paler and without the red markings.

Pupa.—Short and stumpy, rather flatter on the under side; in colour, dull brown with darker markings.

Food Plants.—Various species of Dock (*Rumex*).

Time of Appearance.—There appear to be three broods of this beautiful little butterfly each year. It appears first on the wing in April or May, the eggs then deposited hatch in about ten days, and the larva feeds up in about three weeks; it remains ten or twelve days in pupa, and the butterfly is on the wing again by the end of June. The same relative periods may be taken with the second brood, and the imago may be found in September and October. The larvæ from these butterflies hibernate very small, reappearing early in the year. Though the dates given are those at which a greater

number of specimens may be found than at any other period, there appear always to be a few that either do not feed up so rapidly, or are delayed from some other cause, and odd specimens are often found at intermediate dates.

Habitat.—An abundant butterfly in most of places all over Britain. It is very common in lanes, railway embankments, and waste places. It is widely distributed all over Europe and Asia, and is also found in North America, one form of it extending as far as California, and I have a poor specimen from Venezuela, given me by Mr. Harwood, of Colchester. This is a more Southern locality for the species than has yet been recorded in America. A variety of it is also found in Abyssinia.

Variation.—This is one of our most variable species, and the different forms it assumes are most protean. The ground colour varies from the bright copper of the type through paler yellow to perfectly pure silvery white, which is called *Schmidtii*, Gerh. In the other direction it varies by the forewing being suffused with dark scales until they nearly resemble the hind wings, I have one from Sherwood Forest with very little of the coppery red remaining; another with still less is in the collection of Mr. Stevens, and another given me by Mr. G. F. Mathew and taken by him on the island of Pachalimon, in the Sea of Marmora, which only shows it in certain lights like the blue of *A. Iris*. This also has short tails to the hind wing, and is the variety *Timeus*, Cram. (called *Eleus*, Fab., by Staudinger), which is found in that part of the world. Besides these changes in the ground colour, the spots vary in number and size, being very few and small in a specimen of Mr. Howard Vaughan's, and forming a broad band in a

specimen of Mr. Marriotts, taken at Finchley, 1876. The coppery band on the hind wing varies, being very small on Mr. Steven's dark specimen, named above, reduced to a few red streaks on a specimen of Mr. Gregson's, and entirely wanting in another in the same cabinet. These may be called natural changes, but many very abnormal varieties exist. Mr. Gregson and Mr. Sidebottom have each one with the forewings like *Schmidtii*, but the hind wings are of the normal form. Mr. Gregson has another with only a part of one forewing silvery, and all the rest as usual, and others similar exist in other collections. Mr. Bond has a wonderful variety, which has the black spots and copper portions of the wing as usual, but the costa and hind margin of the forewing and basal portion of the hind wing are smoky grey. Mr. Sidebottom has one with the whole half of the fore wing dark smoky. This was taken at Colchester, where he also got a dark one similar to that of Mr. Steven's, named above. Mr. Vaughan has one, in which the coppery portion of the wing is pale smoky brown, with the veins of the forewing paler; but the two most extraordinary aberrations are in the collections of Mr. Stevens and Mr. S. Webb. Mr. Stevens' specimen has all the wings pale smoky red, the hind margin of the forewings, and basal portion of the hind wings, smoky grey, the red band of the hind wing being very pale grey. The locality of this specimen is not known. Mr. Webb's specimen is still more wonderful and more difficult to describe in words. The costa and hind margin of the forewing, usually black, are pale drab, the spots are paler, and the veins are also paler drab, giving the insect a reticulated appearance. The hind wings are all pale drab, except that there are a few small red spots to indicate where the band should be. Other named forms given in Kirby are *Chinensis*, Feld, occurring at Shanghai;

Pseudo phlæas, Que., from Abyssinia; *Americana*, D'Urb., from Massachusetts, and *Hypophlæas* Boisd, from California. I am not acquainted with any of these except *Americana*, which is orange yellow instead of copper colour, but does not differ so much as many British specimens that are not considered to be worthy of being called varieties.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

EXCHANGE.

DUPLICATES.—Fine specimens of *Nebulosa*, *Herbida*, &c., also hand-painted drawings of 40 remarkable varieties of *Caja*, on cards suitable for albums. *DESIDERATA* Larvæ.—S. L. Mosely, Beaumont Park, Huddersfield.

NOTES, &c.

A. ALNI BRED.—On June 1st a beautiful *Acronycta Alni* emerged from a chrysalis which we had found in the autumn.

A. LEPORINA.—On July 6th, we took a beautiful specimen of *Acronycta Leporina* at rest on a birch tree.—R. PRESCOTT DECIE, Brockleton Court, Tenbury, Worcestershire.

YELLOW VARIETY OF *Z. FILIPENDULÆ*.—I am pleased to be able to record that I have bred two specimens of the yellow variety of *Z. filipendulæ*. The first emerged on Saturday, the 2nd of July, and the other the next day. I only had about thirty pupæ. I have been particularly fortunate with this variety; for the first year I collected I bred one and captured another, which I gave to Messrs. Gardiner and Robson here.—J. J. DIXON, Alliance street, Hartlepool.

BRITISH REPTILES.

I have been reading your paper on the British Reptiles. I find you have omitted one, viz.: the "*C. Lævis*" the Smooth Snake. I send you a sheet of a publication called "Young England," published some years ago, with a good figure of the snake. I shall be glad to have it back again when you have read it. As to the Edible Frog it was found at Foulmin Fen, Cambs.; some years before it was found in Norfolk. The first notice of it is in the vol. of the Zoologist for 1844, but my friend had known the animal some years before, though he did not know the name until September, 1833, and from the quantity I saw in 1844, I think they must have been there many years, the place where they were found, being a very out of the way place, will account for their not having been noticed long before; an old Fen-man told me, they had been there as long as he could remember. I very much doubt the Green Lizard, *L. Viridis* having been really met with in this country, if one or two have been taken they may have been escaped ones, or may have been turned out, I know of specimens that have escaped. You have said nothing about the great variation in colour that the "Viper" is subject to; I have some specimens quite black, browns of shades up to bright mahogany I have also seen the ground with a creamy white, and have one in spirits, and some nearly as green as some of the common snake. The Common snake does not seem to vary much, the colours are much brighter after changing their skin, as in the Smooth snake. The Blind worm is very common in places in the Isle of Portland, you could a few years ago, hardly turn over a large stone without finding one. I have never seen one coloured as you describe on the back, which has always been brownish grey or creamy white more or less mottled and sometimes a few spots, the belly bluish black; there is in most specimens a narrow

black line down the centre of the back.

I think the following is a correct list of the Reptiles that are found in this country:—

The Scaly Lizard
 Sand Lizard
 Slow Worm
 Common Snake
 Smooth Do.
 Viper
 Common Frog
 Edible Do.
 Common Toad
 Natterjack do.
 Common Warty Newt
 Smooth do.
 Palmated do.

The two Turtles are certainly only accidental visitors.—FREDK. BOND, Staines, Middlesex.

A BOTANICAL RAMBLE IN TEESDALE.

BY DR. JOHN W. ELLIS.

(Continued from page 255.)

Before breakfast next morning we found time to explore the remains of Barnard Castle, and obtained a fine view from the summit of the Round Tower. After our breakfast, we started afoot for Middleton, but, after paying a visit at Cotherstone, we took the train from the latter place to Middleton-in-Teesdale, sending all the "traps" we could spare, home by rail. After a four miles walk along the High Road to the High Force Inn, we struck off down a footpath on the left, and found ourselves at Winch-Bridge, where the river is spanned by a swing bridge, the undulations of which, when you are walking across it, give one a very uneasy feeling about the pit of the stomach. After a good lunch on the other side of the bridge, we commenced botanizing in earnest, as the spot seemed a likely one for rare plants; and, indeed, we were fairly rewarded by the following:—*Potentilla Fruticosa*; *Galium boreale*; *Equisetum umbrosum* (var. *Drummondii*); the mealy Primrose

(*Primula farinosa*); *Antennaria dioica*, &c., &c. Recrossing the bridge we regained the high road, and found growing by it the Melancholy Thistle (*Carduus heterophyllus*); *Sanguisorba officinalis*; the Ladies' Mantle (*Alchemilla vulgaris*); a peculiar variety (*Rothii*) of the Lady fern; the black-stalked spleen wort (*A. trichomanes*); and the Brittle fern (*Cystopteris fragilis*). After a good tea at the High Force Inn, we walked through the plantation of larches to the High Force—the greatest cataract in England. The roar of the great volume of water, which pours into the black chasm below, is heard distinctly at the Inn, a distance of a mile. In the river below are fine trout, and the High Force Inn is celebrated for its trout breakfasts.

The following morning we found the rain coming down in torrents, and had almost decided to return home, but as the rain diminished about ten o'clock, we pushed on over the moors to Widdy Bank, which we reached in about two hours. After ascertaining that we could have a bed for the night, at the farm just at the foot of the fell, we left our things there, and wandered over the fell, amid the bogs and rills—where the beautiful starry *Saxifraga aizoides* was growing in profusion. On the high lands about here, the Yellow-mountain Pansy (*Viola lutea*) was abundant, as likewise were the common Sundew (*Drosera rotundifolia*) and the Butterwort (*Pinguicula vulgaris*), and on the top of Widdy Bank fell, we found fine specimens of two of the Lycopodia (*L. silago* and *selaginoides*). Crossing over the fell, we made tracks—rather devious ones, on account of having to go round bogs, &c.—for the "Weel"; as the only quiet portion of the Tees, just above Caldron Snout, is called. Scrambling among huge masses of fallen rock, we soon found ourselves at the magnificent cataract—Caldron Snout—a fall of about 200 feet in length, which is crossed by a narrow bridge about 15 inches wide—crossing which makes one feel giddy as you look into the boiling torrent below. After

luncheon on the rocks, in full view of the cascade, we searched the meadow land on the Westmoreland side, for botanical specimens, and were rewarded with the fragrant *Gymnadenia conopsea*, several specimens of the globe flower (*Trollius Europæus*). Recrossing the river we worked Falcon clints—a lofty range of Basalt—for *Woodsia ilvensis*; but like many other botanical visitors to this neighbourhood, without success. Among the fallen rocks, at the foot of the cliffs, we found fine specimens of the Oak and Beech ferns, the prickly shield fern (*Polystichum aculeatum*) and the mountain fern (*Lastræa Oreopteris*, &c.).

Next morning, by our hosts' advice, we retraced our steps, as he informed us the road over the fells to Appleby was a difficult one to find. We took the opposite bank of the Tees, through the juniper-covered moors—the shooting ground of the Duke of Cleveland—and beneath the frowning Cronkly Fell, past a frothy cataract—the White Force—until we reached a range of cliffs overlooking the High Force. The whole bank of the Tees was clothed with the *Potentilla fruticosa*, a plant found nowhere else. Leaving the river we struck for Holwick Scars, a range of lofty crags, where we found the parsley fern (*Allosorus crispus*) very abundant, and where among *Asplenium trichomanes* my friend bagged a single specimen of *Asplenium marinum*; *Cystopteris fragilis* was one of the most abundant ferns at the top of the scars, along with *Blechnum boreale*. From Holwick Scars we took the road to Middleton, where we found the wild raspberry (*Rubus idæus*) plentiful, and a few specimens of the grass of Parnassia (*Parnassia palustris*). Arriving at the station just in time to catch the train, we left behind us with regret the beautiful and romantic scenery among which we had wandered for the previous week, looking forward to other excursions of a similar character which we hoped would follow—but which circumstances have rendered very unlikely at present.

THE YOUNG NATURALIST.

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The YOUNG NATURALIST :

A Penny Weekly Magazine of Natural History.

No. 89.

JULY 23RD, 1881.

Vol. 2.

HOLIDAYS.

AT this time of the year the greater part of our young people are at home for the holidays, and Paterfamilias and Materfamilias too are much troubled to know what to do with them during these weary weeks. Tired with the duties of the day, the father cannot bear their noise, and the poor mother sighs many a time as she is

"Setting out the tea things,

For a howling herd of hungry boys," and wishes the Midsummer holidays were not quite so long. Lads who have been at school all day, with "home work" for the evenings, and only Saturday with nothing to do, have not found the time hang heavy on their hands, but when Midsummer with its six or seven weeks holiday has arrived, when the weather is fine and the days long, it often happens that the holidays which are looked forward to with much exuberance of delight, are found not to be quite so pleasant as time goes on. At first they would say with the Poet,

"Blest power of sunshine, genial day,
What balm, what life is in thy ray;
To feel thee is such real bliss,
That had the world no joy but this,
To sit in sunshine calm and sweet,
Oh! 'twere a world too exquisite."

But getting out into the fresh country air, which of itself was almost enough to begin with, ceases to have so great a charm, and if the youths are to be kept out of mischief, they must have something to do. The ordinary amusements of young people may be all very well in their way. It is not our place to speak disparagingly of them, but they have one fault—they are amusements and nothing more. They may serve as pastime in the true sense of the word—to pass the time, but they do no more than that. They afford no food for the mind, no intellectual improvement follows even the best of our athletic sports, and as a consequence they either pall, or those who follow them cease to have any higher aspirations. We would not for instance say a word against such a game as cricket, which is no doubt an exceedingly manly and attractive game. But it cannot require much intellect to play even at cricket, and the youth whose aspirations rise no higher than a good average score, or even to be the champion player of his neighbourhood, has certainly little desire for mental advancement. On several previous occasions, and again at this holiday season, we put forth the pursuit of Natural

History as an amusement, that while it will fascinate its votaries by the pleasure it affords them, will also tend greatly to their mental improvement. A lad with tastes this way is apt to be found fault with by an order-loving mother for bringing so much rubbish into the house. He will be called "cruel" for taking a bird's nest, or attempting to preserve a few insects. He will be "dirty" if he attempts to skin a bird, and a few dried wild flowers will be "litter." Yet in all seriousness we would urge upon parents to foster and encourage such tastes, and even to try and create them where they do not exist. They have not only the advantages of many other out-door amusements, but they give in-door amusement also; and this amusement is not only innocent of itself, but is of a character certain to elevate and improve the mind.

We have noticed during the last few years that in various parts of the country Exhibitions are being held, where prizes are offered for competition in different departments, and it has given us much pleasure to see, in connection with such competitions that Natural History exhibits hold now a much more prominent place than they used to do. Catalogues of such exhibitions have been through our hands lately, in which prizes amounting to from Five pounds to Twenty have been awarded for Stuffed Birds and Animals, Collections of Insects, of Shells, Dried Plants, Seaweeds, Fossils, Minerals, &c. We have also seen in Flower Show Catalogues, prizes offered for the "Best Bouquet of Wild

Flowers," "Best Collection of British Ferns, collected and grown by the exhibitor," &c., &c. Such things as these show not only that taste in this direction is being developed, but that it is considered desirable it should be still further developed. We know from our own experience that lads who spend a good deal of their leisure in Natural History pursuits are the equal at school work, if not the superior, of the best of those who "go in for" Cricket, or Football, or kindred amusements. Parents then, who find holiday time a trial of their patience and endurance, will do well to cultivate such tastes in the rising generation, and we are sure the result would be successful in every way.

We have spoken of boys and young men only to-day, but it must not be understood that we would exclude young ladies from participation in the pleasures of this pursuit. Former articles have spoken plainly enough on this point, and to them we must refer our readers.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

EXCHANGE.

DUPLICATES.—Cardamines, Auriflua, Menthastris, Lubricepeda, Dispar, Orbona, Fimbria (one), Pronuba (very abundant here this year if wanted by correspondents). DESIDERATA.—Sinapis, C. album, T. Quercus, W. album, Mundana, Irrorella, Camellina, Ziczac, Rubricosa, &c.—H. FRERE, Queen's Road, Kingston-on-Thames.

DUPLICATES.—Larvæ of *Lubricipeda*, &c.
 DESIDERATA.—Other Larvæ. S. L. MOSLEY,
 Beaumont Park, Huddersfield.

Larvæ of *E. jacobææ*, on receipt of box
 and return postage.—GEORGE F. MILLER,
 23, Bensham Terrace, Gateshead.

NOTES, CAPTURES, &c.

CAPTURES AT HONEYDEW. A portion of
 a hedge in my garden is composed of Sallow,
 and observing the other day they were much
 infested with Aphides, I went at night with
 a lantern to see if any Noctuæ were feeding
 on the honey dew. I have taken or seen the
 following during the past week :—*L. comma*,
impura and *pallens*, *X. lithoxylea* and *polyodon*,
M. brassicæ and *anceps*, *A. basilinea* (including
 one with a dark red band across the wing),
gemina and *oculea*, *M. strigilis* and *fasciuncula*,
C. morpheus and *cubicularis*, *A. segetum*, *excla-*
mationis and *porphyrea*. The last named I
 have never taken here before, and believe
 only one specimen has been previously
 obtained, by Mr. Gardner, at sugar, about
 two years ago. *T. pronuba*, *N. augur*, *plecta*,
C. nigrum, *festiva*, and *baja*, *H. oleracea* and
pisi, *P. V-aureum*, *B. repandata* and *C. russata*.
 I have given a full list because I have not
 seen an account of the species frequenting
 honeydew before. I have no doubt I will
 yet add considerably to the list.—JOHN E.
 ROBSON, West Hartlepool.

CAPTURES AT LEWISHAM.—I shall feel
 obliged if you will kindly insert the following
 captures made by myself and brother, at
 sugar, during the past 10 days. On the
 nights that we sugared, the sky was very
 clear, and the wind chilly, but there was
 no moon to interfere with our sport; the
 following were among our captures :—1 fine
C. ligniperda; 3 *A. megacephala*; 1 *A. aceris*;
 1 *A. rumicis*; *A. pisi*, common; *A. basilinea*
 plentiful, as was *N. plecta* and *T. orbona*; *T.*
pronuba and *X. polydon* had their fighting
 instincts highly developed. *X. lithoxylea*

and *A. gemina* were fairly represented; 1 *N.*
festiva; 1 *N. triangulum* and *N. augur* plen-
 tiful; 7 *G. trilinea*; 2 *L. comma*; 3 *D. pin-*
astri; 3 *L. lithargyria*; 3 *E. lucipara*; and
M. typica was so plentiful that it became
 quite a nuisance, averaging at least 4 or 5
 to each patch of sugar. C. A. MARRIOTT,
 11, George Lane, Lewisham, Kent.

THE MOLE. It may be interesting to
 some of the some of the readers of the
Young Naturalist to know that I have several
 varieties of the Mole taken about here. It
 seems to vary from black to white. I have
 white, cream colour, dun, slate colour, and
 various shades of grey and black.—THOMAS
 HANN, Byers Green.

NOTES ON V. C-ALBUM.—“We have all,
 when out of doors, worked hard this season
 for larvæ of this species, as we failed to get
 ova, and we never in all our years took so
 many. Besides the one I sent you, I have
 at this time, one emerged, found on currant,
 and two pupæ on the same tree still to
 emerge, and one larvæ nearly full fed; on
 nettle three larvæ have been found. On
 Friday, June 24th, a pupa and a tiny just
 hatched larva were found on currant (the
 latter is the larva I have still feeding). This
 shows they must have been deposited at
 very different times. If you remember I
 told you my son took a *C. album* on the wing
 on Good Friday; about this time the ova
 producing these now in pupa must have
 been laid; then came a season of cold, when
 doubtless the butterflies returned to hyber-
 nation, and when once more the weather be-
 came warm, they were again on the wing, and
 our young larva, would be from an egg depos-
 ited then. Does not this seem reasonable?
 On the 22nd. of June my eldest girl was
 driving for a friend, and resting on a flower
 sunning itself, she watched for a few minutes,
 a splendid freshly emerged *C. album*. She
 longed to get out and try to catch it, but her
 pony was too fresh to permit her to venture
 to alight. Even since I have been trying to

take an early specimen, but not one has even been seen. The one that has emerged, off currant, is scarcely as pale as most nettle ones, so far as my memory serves, but I have not one to compare with it. The currant pupa shall be kept apart from the nettle ones, and on my return I will send you a specimen off both plants."

(I have taken the liberty of extracting the above notes from a private letter from Mrs. Hutchinson, of Leominster, as they tend to confirm still further, her former evidence on the double broodedness of this butterfly. If all doubtful points could be satisfactorily cleared up as this has been, it would be something to the credit of our British entomologists.—John E. Robson, West Hartlepool.)

BRITISH BIRDS, THEIR NESTS AND EGGS.

By S. L. MOSLEY.

II, KESTREL.

Falco tinnunculus, Linn.

Torn Falk (Sweden).

Cudyll Cock (Anct. Brit).

TINNUNCULUS.—"Conjectured from *Tinnio*—to chirp."—Morris.

Size.—Male, length 13 in. to 14 in., expanse, 2 ft. 3 in. or 4 in. Female rather larger.

Plumage.—The adult male has the bill bluish horn-colour, black at the tip and lighter at the base. Top and sides of head greyish slate colour, with a dark streak down the centre of each feather. Back light chestnut brown, each feather having a black shaft and a dark triangular spot near the tip. Primary and secondary wing-feathers greyish black with lighter edges. Tail, pale slaty blue, with a black band about an inch in width near the end, the tips of the feathers being white. Chin white, with a dark patch on each jaw. Throat creamy, shading off to a purple tint on the breast

and belly, the breast having small longitudinal streaks, and the belly, spots of darker colour. Thighs buff, with a few small black streaks, the feathers in front reaching below the knee; under tail coverts white; legs and cere yellow; eyes dark hazel-brown.

THE FEMALE does not differ so much in size from the male as is generally the case with birds of prey. Both the back and the under parts are more mottled with dark, though the ground colour, especially of the latter, is lighter. The tail has about seven bars of dark colour, the ground being reddish brown; occasionally the ground colour in very old females is dingy slate blue.

IMMATURE BIRDS resemble the female in colour, the spots in the male becoming less at every moult. The blue tail is not attained until the third or fourth moult.

THE YOUNG are at first covered with white down tinged with yellowish.

VARIETIES are very rare. A pair of white ones, however, were reported some time ago in the Zoologist.

Note.—The note of the Kestrel has been described as resembling the words, "pli, pli, pli," or "pri, pri, pri."

Flight.—The regular flight of the Kestrel is generally a graceful sail, but it has a peculiar habit of remaining poised in one place for a considerable time while examining the ground below for prey. When its keen eye catches sight of some object of attraction, the hawk suddenly drops, then poises again, repeating this at intervals, until either the prey escapes, or the bird swoops down and carries off its victim. From this habit it is often called the Wind-hover.

Migration.—Harting states that the Kestrel is migratory, moving northward in spring, and returning south in the full of the year; but probably few, if any, leave England.

Food.—Although the Kestrel will sometimes attack small birds, and has even been

known to devour its own species, yet these are exceptional cases, its staple food consisting of field-mice, frogs, newts, and snakes, as well as small animals and large insects, with which latter it chiefly supplies her young. On this account it should be encouraged rather than persecuted, as it renders great service to the farmer, and does little injury, if any, to the game preserver.

IN CONFINEMENT this bird is often made a pet, those becoming most docile and tame which are taken from the nest when young and reared by hand. Even when allowed their liberty, they will return to be fed, and have even been known to bring a partner. One pair is recorded as having bred in captivity. Hancock states that he could never teach it to fly at birds, probably because these do not form its natural food.

Habitat.—This bird seems to be a common species, perhaps the most common Hawk, in all parts of Britain, except the extreme south-west of England; but like all other birds of prey, it is much scarcer than it was formerly.

ABROAD it is found in almost all parts of Europe; also in some parts of Asia and Africa.

Nest.—A rock side or face of a sea cliff is frequently selected as a site for the nest. More often, however, it is placed in a tree, or on the old nest of a crow or magpie, which is repaired. Several cases are on record of its having built in hollow trees, and on church steeples and old ruins. The nest is very loosely put together, made of sticks and lined with some softer substance, such as grass or wool.

Eggs.—From four to six eggs are laid early in the season, generally before the end of March or early in April. The ground colour is greyish or yellowish white with dark red blotches. Sometimes the ground colour is red-brown, spotted and smeared with darker colour.

The VARIETIES of the egg sometimes occur dirty white without any red blotches or stains. One is recorded in the *Zoologist*, vol. viii, p. 7640, as being pure white.

Figs. 1 and 2 are from specimens in my own collection, taken in Yorkshire. Figs. 3 and 4 are from drawings kindly furnished by Mrs. Battersby, of Cromlyn, Ireland.

BRITISH REPTILES.

In your article on British Reptiles, in the *Young Naturalist*, page 212, it is stated that Grey's banded Newt (*Ommatotriton vittatus*) had been met with near London, and that the specimens were in the British Museum. I might say that the same species is also described in "Cooke's British Reptiles."

According to Vol. iii. of the "*Zoologist*," page 61, it appears that Grey's Banded Newt (*O. vittatus*) may altogether be removed from the British catalogue.

It was first introduced into the British list by Jenyn's, in 1855, on the faith of some specimens found in a bottle in the British Museum, by the late Dr. Grey, which being associated with some British Newts, were supposed to have been obtained in the neighbourhood of London.

Through a somewhat similar error, some specimens in the *Jarden des Plantes*, at Paris, were believed by Valenciennes to have been obtained in France, near Soul; and other examples were supposed to have been found living at Antwerp. It has thus come to pass that naturalists, copying one from another, have assigned England, France, and Belgium as localities for this Newt. It now turns out, from M. Lataste's researches, that all these localities are erroneous, and that the so-called *vittatus* is no other than *Triton Ophryticus* of Berthold, an Eastern species found in Syria and Asia Minor. The British Newts are therefore reduced to three in number.—H. T. SOPPITT.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y.N.)

FAMILY IV. LYCÆNIDÆ.

This is an extensive group of small butterflies, often of extreme beauty. The "coppers," "blues," and "hair streaks," of our British fauna, being representative of the principal genera. The larvæ, as already said, are onisciform or woodlouse shaped, the legs being concealed under the projecting sides, and the head is generally very small. The pupa is short and stout, attached by the tail and also with a band of silk across the middle. It is divided into about 40 genera, which include fully 1,200 species, nearly twice the number known 30 years ago. In very many of the species, the sexes differ considerably in colour and markings, as will be seen in the description of most of those occurring in this country. Only three genera occur in Britain, which may be readily distinguished as follows:—

I. Upper side bright coppery red.

Genus I.—LYCÆNA.

II. Upper side blue, often brown in female.

Underside with black spots, generally in a white ring.

Genus II.—POLYOMMATUS.

III. Underside with an irregular pale line across the centre portion of the wing.

Hind wing generally with a short tail.

Genus III.—THECLA.

Genus I. LYCÆNA, Fabr.

"LYCÆNA, F., *Lycæ'na*, a she-wolf. Sodoffsky proposes *Lycia* a surname of Diana."—A.L.

Changes are always undesirable, and as the generic name used above is not that in general use, it seems necessary to give some explanation. The genus has had more names used by British authors than there are

British species. Stephens and Curtis use the name *Lycæna*, which is also adopted in Kirby's Synonymic catalogue (1871). In Doubleday's Synonymic list (1850), and Newman's British Butterflies, it is called *Polyommatus*, Latr. In Westwood's Gen. D.L. (1852), Stainton's Manual, and in Kirby's Manual of European Butterflies, it is called *Chrysophanus*, which is also used by Dr. Staudinger in his Synonymic catalogue (Dresden, 1871.) When authorities differ, who shall decide? It was necessary to make a choice, and I select *Lycæna* for the following reasons: Latreille's genus *Polyommatus* (1805) includes both the "Blues" and the "Coppers," and the "Blues" are the typical section of the genus. Hubner's name of *Chrysophanus* was not used till 1816, while the Fabrician name *Lycæna* (1807), is not only the earliest name of the genus as it now stands, but it is the earliest used by a British author, and is adopted by Kirby in his most recent work. The name *Polyommatus* is thus left for "the Blues," for which it is most appropriate, meaning "many eyed."

"LYCÆNA is a genus of about fifty species, of which nearly a dozen are European, and several others inhabit the countries bordering on Europe. About the same number occur in America, principally in the Northern portion of that continent, only one being recorded from South America (*L. Atahualpa*, Wall., from Chili). The others are scattered over Asia and Africa, and one each are recorded from Australia and New Zealand. Only two species have been discovered in the British Islands, of which one alas, has become quite extinct, not having been taken for 30 years, it can now only be obtained when old collections are broken up.

(NOTE.—The above should have preceded the account of the species *C. Dispar* and *Phlaas*, in our last number, but was accidentally misplaced.)

NATURAL HISTORY DIARY:

By J. W. CARTER, Bradford.

June 1st. *C. pusaria* and *H. adusta* out, Bingley (E.P.P.B.); *A. remutata* out, Shipley Glen; Larvæ of *B. callunæ* in hundreds, Rombald's Moor.

June 2nd. *E. albulata* very abundant, Bingley (E.P.P.B.), swarmed in every meadow round here, where its food plant (*Rhinanthus*) Yellow-rattle grows. Found nest of the Common Sandpiper, containing four eggs, at Manywell's Reservoir, near Bingley (E.P.P.B.)

June 3rd. *A. urticæ* out, Bingley (E.P.P.B.)

June 4th. *A. rumicis* out (E.P.P.B.); *H. hectus* on the wing. Found full-fed larvæ of *L. cæsiata* on Rombald's Moor. Larvæ of *Hybernidae* in thousands, Shipley Glen. That of *C. boreata* was confined to Birch, and may be easily distinguished from its near ally (*C. brumata*) by its shining black head. Heard Nightjay at Shipley Glen.

June 5th. *N. camelina* out, I also took *S. belgiaria*, since then it has been very common (E.P.P.B.)

June 6th. Found nest of Pied Flycatcher, containing seven eggs, in a hole in the trunk of an old tree in Upper Wharfedale. A Great Tit's nest containing young was built in the same tree. *M. montanata* on the wing (E.P.P.B.) *B. rubi* on the wing. *N. cristulalis*, *A. fuliginosa*, *L. alsus*, *E. octomaculalis*, &c, out at Witherslack. Found larvæ, pupæ and imagines of *Z. filipendulæ* at Grange.

June 7th. Found nest of Ray's Wagtail in a pasture near Denholme (E.P.P.B.)

June 8th. *Geranium phœum* in flower, Cottingley (E.P.P.B.)

June 10th. Larvæ of *Y. elutata* and *L. didymata* very common on Billberry (S.L.M.) *H. lupulinus*, *M. ocellata*, *H. dentina*, and *F. piniaria* out (E.P.P.B.) Bingley.

June 11th. *S. populi* out (E.P.P.B.)

June 12th. *A. ulmata* out, Hawksworth, very local (J.F.)

June 13th. *H. prasinana* out *N. plecta* common, Goit-stock (J.A.B.)

June 15th. *H. velleda* out, Huddersfield (S.L.M.)

June 17th. Took one *V. cambricaria* (Bingley Wood). It is not so abundant by far this year, as in the last two or three. (E.P.P.B.)

June 18th. *A. fumata* out, Bingley, very abundant this year (J.A.B.) *M. albicincta* out; moths very common at sugar, including *N. Plecta*, *X. rurea*, and var. *combusta*, *strigilis*, *fasciuncula*, *dentina*, *rumicis*, *thallasina*, *festiva*, *pisi*, and *gemina*. Larvæ of *pilosaria*, *defoliaria*, *trapezina*, &c., feeding (S.L.M.)

June 19th. *M. galiata* out, near Bingley (J.A.B.) *I. lactearia*, *A. luteata*, *E. palumbaria*, *A. candidata*, *C. propugnata*, and *E. affinitata* out at Hawksworth, the latter species very local. *A. porphyrea* on the wing, Rombald's Moor; *P. meticulosa*, *C. pamphilus*, and Cock-chaffer (*Melanontha vulgaris*) out at Shipley Glen. *Campanula rotundifolia* in flower.

June 20th. As my brother and I were going to look for *V. cambricaria* we were surprised to see a brood of long-eared Bats, hawking for flies in a cave; we caught two of them. It is the commonest species of Bat in Bingley Wood. *H. velleda* out, actually swarmed (E.P.P.B.)

June 21st. *Erica tetralix* in flower, Bingley (E.P.P.B.) Moths common at sugar, *Tenebrosa*, *augur*, *pronuba*, *oleracea*, &c. (S.L.M.)

June 23rd. Dog Rose (*Rosa canina*) in flower. *L. cæsiata* out, took one almost black, a not uncommon variety in this district (Bingley). Found Sedge Warblers nest containing young (E.P.P.B.)

June 24th. Took *E. lucipara* and *A. porphyrea*. Saw tawny Owl flying about at dusk, Bingley Wood (E.P.P.B.)

June 25th. *E. heparrata* out, also *S. olivalis* (E.P.P.B.)

June 26th. Took *C. spinula*.

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The YOUNG NATURALIST :

Penny Weekly Magazine of Natural History.

No. 91.

AUGUST 6TH, 1881.

Vol. 2.

HOW TO BEGIN TO FORM A COLLECTION OF LEPIDOPTERA.

IN our first volume we gave a number of articles intended for Lepidopterists who were just commencing the pursuit. One subject it appears we did not touch upon—How shall a beginner do with the first insects he obtains? He has not enough to arrange with any scientific precision, even if he knew their names, &c., which he does not. Many of his insects are probably in poor condition, and ill-set, but they are all he has, and he must make a beginning with them somehow. What shall he do to get most knowledge and make most progress with his first captures? This question, as put to us, does not seem very easy to answer. We know how we did ourselves, but we also know that several others who followed our example, tired of the pursuit before they really could be said to have begun; and it may be that we led them by a bad road. Perhaps if we relate our own experience, others will supplement our remarks by giving us their recollections of their early struggles.

The accidental sight of a small ill-arranged case of butterflies hung among

some cases of stuffed birds awakened us to the desire to have and know something about such beautiful objects, and with the full zest of novelty we went out next day to "catch" some. Our first captures were two moths, afterwards known to be *Euclidia mi*, and one "Cinnabar," so named by the owner of the case in question. These were grand species for a beginner to take, and, though they were pinned with common pins, and set we don't know how, they were much admired, and sent our enthusiasm up to fever heat. Our captures before the season closed were ten or twelve species of butterflies and a goodly number of moths. They were kept without any sort of arrangement in a soap box. Our friend knew the English names of a few conspicuous species:—*V. urtica* was the "King William," *Semele* was the "Rock-eyed underwing," and so on. The dingy ones he did not know. Stainton's Manual was then publishing and we bought the first volume. Then hour after hour we pored and posed over it, generally wrong in our conclusions, but still getting nearer and nearer to being right. We had a case made with a glass lid. It was well and carefully

made—thanks to falling in with a good cabinet maker—and when spring came we were eager for the fray. The “dear old *Intelligencer*” was then in existence, and some kind Entomologists then as now occasionally offered to give species away. We got a box from one gentleman and found out what wretched abortions our finest specimens were. We fell in with a collector from another place, once when out with our net. He taught us how to set, and told us what species that we could get were “good for exchange.” By autumn we had a goodly number that we ventured to offer in the *Intelligencer*, and we obtained many species we could not get at home, and some that were common enough as we found out in time. Butterflies only were what we sought to obtain. We now had three more cases made exactly like the first, with the idea that they would do for a cabinet by and by. Then we arranged our butterflies according to the Manual, leaving blanks for those species we had not got. By this time we had taken over twenty butterflies and obtained nearly as many more in exchange, and when arranged they made a respectable show. We got no further this season. During the winter we had half-a-dozen more cases made, and ventured to arrange our Hawks and Bombyces. What blanks there were. We had one *Convolvuli* and a few of the commoner species. It was an old Scotchman who brought the *Convolvuli*, alive, and he insisted it was a “burd.” We pointed out it had six legs, eager to show our

knowledge. “Never mind its legs,” said he, “look at its breest, it has feathers, it’s a burd.” We again called his attention to the number of its wings, only to get the same answer; “never mind its wings, look at its breest, it has feathers on, it’s a burd.” But “burd” or beast, it was *Convolvuli*, and was a wonderful addition to our scanty stock of Hawks. Exchanging this year filled up many blanks, and by the end of the time, we had a cabinet made to fit our drawers, and had more made until we could squeeze in the whole of the British Lepidoptera, Micros as well as Macros. This arrangement served for a good many years, though we never went in earnestly for the Micros, and though the drawers of the cabinet are not a very convenient size, they are still in use. Now that cabinets can be bought of any size and at any price, we would not recommend any one to follow our example in this particular, but we do not know if beginners can do much better than we did in other respects.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

CORRESPONDENCE.

DEAR SIR.—The enclosed pill-boxes contain brown-coloured pupæ I found attached to palings last month. In the shape and form I took them to be *P. rapæ*, but the colour was different, so I boxed them, and to-day I find they contain numerous Ichneumon which I suppose caused the colour to change. They may be quite common to

you, but I thought no harm could be done in sending them.

What swarms of *Pronuba* this year, they are quite a nuisance at sugar. I believe this to be a first-rate season. Yours truly,
THOS. W. KING, 3, The Terrace, Camberwell, August 16, 1881.

The Pupæ are *urtica*, and the parasites a *chalcidæ* (?), similar to some we had from *Rapæ* last year. Possibly these are the same insects as those observed by a French Entomologist, and by Mr. Porritt, see Y.N., vol. i., p. 94 and 114.—EDS. Y.N.

EXCHANGE.

Duplicates. Larvæ of *O. Bidentata*. Desiderata numerous. — A. BRAMWELL, Prior Street, Gateshead-on-Tyne.

Duplicates. *Io**, *Cardui**, *Atalanta**, *Caja**, *Dominula**, *Nebulosa**, *Brunnea**, *Festiva**, *Triangulum**, *Oculea*, *Augur*, *Conspersa*, *Helveola*, *Abietaria*, *Ornata*, *Irrorella*, *Tersata*, *Albieillata*, *Repandata**, *Crepuscularia*, *Biundularia*, *Batis*, *Ferruginea*. — C. H. WILLIAMS, 25, Portland Street, Soho, London, W. (Marked * Bred).

Duplicates: larvæ of *Nebulosa*, *Tenebrosa*, &c. Desiderata: other larvæ, especially *Tilia*, *Atropos*, *Ligustri*, *Porcellus*, *Elpenor*, *Stellatarum*, *Fuciformis*, any *Sesia*, *Æsculi*, *Assellus*, *Testudo*, *Staticis*, and many others for figuring.—S. L. MOSLEY, Beaumont Park, Huddersfield.

Having no time to follow collecting, as I could like and as it ought to be followed, I have decided to distribute what insects I have to any who will forward box, with return postage; I will return boxes in turn as they arrive. I have a few pupa and a few hundreds of insects.—GEORGE GREENWOOD, 37, Woodlands Road, Bradford.

NOTES, CAPTURES, &c.

COREMIA MUNITATA.—On Thursday last, July 21st, I had the pleasure of taking a fine female of this species, which has not been

taken here for fifteen or sixteen years. This is the second species that has been taken this year, that has not occurred for many years previously. Surely this is a sign of a good season.—JOHN E. ROBSON, West Hartlepool.

VARIETY OF JAY, &c.—Yesterday, July 23rd, I saw at the house of a friend, among some other stuffed birds, a perfectly white Jay. It was shot during the winter, but did not change its colour on account of the cold weather, as its owner found it when quite small in its nest, and its plumage was then quite white. Among the same collection, were a pair of Waxwings, obtained near Cambridge, several years ago.—ROBERT J. ATTYE, Stratford-on-Avon.

CAPTURES AT STRATFORD-ON-AVON.—I have taken or seen the following Lepidoptera, at sugar, during the last fortnight, July 11th to 23rd. *T. Dersa*, a few; 1 *A. Psi*; 1 *A. megacephala*; 1 *L. conigera*, 3 or 4; *L. lithargyria*; *L. comma* and *Pallens* common; *X. lithoxylea*, a few, and *polyodon* very numerous; 2 *C. cytherea*; *Oculea*, plentiful, some black varieties; *Strigilis* numerous; 2 or 3 *A. exclamationis* and *corticea*; *Orbona*, and one which I believe to be *Subsequa*. *Pronuba*, a perfect nuisance; *N. augur*, common; 1 *N. C-nigrum* and 1 *Triangulum*; 1 *T. subtusa*; a few *Trapezina*; 7 *Affinis*, *H. Oleracea*; 1 *G. libatrix*; 1 *Tragopogonis*; 1 *M. Typica*; 2 *M. Maura*. ROBERT. J. ATTYE, Stratford-on-Avon.

GOOD OR BAD YEARS.—I do not know whether any of your correspondents have noted the fact, but I think the present year seems to be a good one for entomologists. Already I have taken the following Butterflies, which I have never seen before.—Large Tortoiseshells (*V. Polychlorus*), Marbled Whites (*A. Galathea*), plentiful; Silver Washed and Pearl Bordered Fritillaries (*A. Paphia* and *Euphrosyne*), very plentiful; Chalk Hill and Adonis Blues (*Lycæna Corydon* and *Adonis*), the former very plentiful;

and Dingy and Large Skippers (*L. Tages* and *H. Syleanus*).—A. DAVIS, High-street, Gt. Marlow, Bucks.

WILD FRUIT.—Can any of your correspondents inform me whether white wild raspberries are common, as I found several bushes of them in an old chalk pit. In other parts of the same pit there were the red ones (*Rubus Idæus*).—Also, last year I found growing by a stream, a bush of wild white currants. Are they at all common, as I have heard of wild red and black (*Ribes Rubrum* and *Nigrum*) but not white.—IBID.

MUSHROOMS.—In No. 87, your correspondent R. Prescott Decie, states that "mushrooms have been coming up in their fields for the last fortnight." It may interest her to know that I gathered a very large mushroom early in June.—IBID.

While walking from Worcester to Norton Camp at 11.45, on the night of Friday, the 15th inst., I was surprised to hear what sounded to me like the noise produced by the common house cricket, in a place very nearly half a mile from any house. After a few minutes I discovered that the sound came from a tall elm-tree by the path, and apparently from about 15 or 20 feet up it. I never heard any sound like it before out of doors, and I should be very glad if you or any of the readers of the "Young Naturalist" could tell me what is likely to have produced it. I may mention that the night was very still and warm.—F. E. PRESCOTT DECIE, Brockleton Court, Tenbury.

NOTODONTA CHAONIA.—It may interest some of your readers to know that I took on Maple a fortnight ago a larva of *N. Chaonia* which has since turned into a chrysalis.—IBID.

BOTANICAL DIARY (continued from No. 85 and 86, pp. 244). The following are all dates of flowering. White Water Lily (*Nymphaea alba*), June 13th; Dewberry (*Rubus cæsius*), 13th; Devil's-bit-Scabious (*Scabiosa succisa*), 18th; Field Knautia (*Knautia arven-*

sis), 18th; Common Avena (*Geum urbanum*), 18th; Viper's Bugloss (*Echium vulgare*), 18th; Nightshade (*Solanum dulcamara*), 18th; Privet (*Ligustrum vulgare*), 21st; Lesser Convolvulus (*Convolvulus arvensis*), 21st; Larger Convolvulus (*Convolvulus sepium*), 24th; Common Golden-rod (*Solidago virgaurea*), 24th; Yellow Water-lily (*Nuphar lutea*), 26th; White Bedstraw (*Galium mollugo*), 30th; Bramble (*Rubus fruticosus*), 30th; Ladies' Bedstraw (*Galium verum*), July 5th; Meadow Sweet (*Spiræa ulmaria*), 5th; Wild Marjoram (*Organum vulgare*), 15th; Wild Thyme (*Calamintha clinopodium*), 17th.—A. DAVIS, Gt. Marlow, Bucks.

CONTRIBUTIONS TOWARDS THE FAUNA OF PLYMOUTH.

By MR. G. C. BIGNELL, M.E.S.

(Reprinted by permission of the author from the Transactions of the Plymouth Institution and Devon and Cornwall Natural History Society, 1881.)

HYMENOPTERA, ICHNEUMONIDÆ.

Arranged according to the R. v. T. A. Marshall's Catalogue, published by the Entomological Society of London, 1872.

PART I.

ICHNEUMON.—

bilineatus, bred from *Bryophila glandifera*.

trilineatus, bred from *Abraxas grossulariata*.

multiannulatus, bred from *Noctua brunnea*.

confusorius.

gracilentus.

leucostigmus

(To be continued.)

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by S. L. MOSLEY.

(Assisted by Contributors to the Y.N.)

Genus II. Polyommatus, Lat.

"POLYOMMATUS, Lat., *Polyom'matus*, many-eyed." A.L.

A large and very difficult genus, embracing between three and four hundred species, distributed all over the world, but perhaps

least numerous in South America. Dr. Staudinger's Catalogue includes 69 species as belonging to the European fauna, but several of these occur beyond Europe. Kirby's Manual of European Butterflies describes 57 species. Some of these are of perhaps rather doubtful habitat. In Britain we have only nine species, but some even of these are not very easy for a beginner to recognize, especially the females, nor do they seem easy to tabulate. Mr. Stainton's table is too long for insertion here, and it does not include the females which, in many cases, differ much from the males. Particular attention is therefore directed to the descriptions, which are partly printed in italics and small capitals, to call attention to those characteristics that distinguish one species from another.

ÆGON, W.V., P.L.W., FIG. 3.

THE SILVER STUDDED BLUE.

ÆGON, W.V., *Ægon*, a Roman Shepherd. Cf. Virg. Ecl. iii. 2."—A.L.

Imago.—Pl. 20, Fig. 3. Male, *purplish blue*, hind margin brownish black, very narrow; fringe white. Female, brownish black, with a purple blush; a row of orange lunules at the hind margin of the hind wing, most distinct towards the anal angle. Underside, bluish grey, with black spots in white rings; *no spots on the fore-wing, between the central spot and the base*. An orange band near the hind margin of all wings, with a row of black spots in it.

Larva.—"Bright yellow green, dorsal stripe blackish brown, edged with whitish from the third to the tenth segment; sub-dorsal stripe visible from the third to the eleventh segments, as a greenish yellow line running between two green ones, darker than the ground colour. At the bottom of the sides, along the lateral ridge, commencing on the third segment, and continuing round the anal extremity is a whitish line; between

the dorsal and sub-dorsal lines are pale oblique lines of yellow green; head black." (Condensed from Mr. Buckler's description in Ent. Mo. Mag., Vol. I. page 241.)

Pupa.—Less than half an inch long, dull green, with a brown dorsal line, wing cases rather long in proportion.

Food Plants.—Mr. Buckler's larvæ fed on Birds-foot (*ornithopus perpusillus*). Mr. Owen, who copies Mr. Buckler's description of the larva, gives both Birds-foot trefoil and Birds-foot; but possibly this is a mistake, for Mr. Newman, who also copies Mr. Buckler, calls *ornithopus perpusillus* "the common birds foot trefoil." The common birds foot trefoil is *Lotus corniculatus*, a very different plant. Mistakes are easily made and perpetuated by copying carelessly. The larvæ may feed on other plants than the Birds-foot, but no other appears to be known to a certainty; and the butterfly should be much commoner if it fed on so abundant a plant as *Lotus corniculatus*.

Times of Appearance.—The butterfly emerges about the middle of July, and continues on the wing for more than a month. The eggs do not hatch till spring, the dates given by Mr. Buckler being from 28th Feb. to about the end of March. The larvæ fed but slowly, changing their skin for the last time from 11th to 15th June, and turning into pupæ by the 24th, remaining in that state about three weeks.

Habitat.—Widely distributed in Britain, but perhaps sometimes overlooked or mistaken for the second brood of the Common blue, which it closely resembles on the upper side. It has been taken in Scotland and Ireland. Abroad, it occurs all over Europe and in Asia Minor.

Variation.—Abnormal varieties of *Ægon* are not common. An exceedingly pale specimen is in the collection of Mr. C. A. Briggs, who also possesses one with the

right wings male and the left wings female. Mr. Vaughan has one with the spots coalescing and forming streaks, a form of variation noticed in others of the genus. A female in Mr. Wellman's collection has the orange band very distinct on the upper side of all four wings, with well defined black spots. The variety *Bella*, H.S. is found in Asia Minor. The underside of the wings is paler than the type, and has a row of marginal spots. Other named varieties are—*Corsica*, Bell, occurring in Corsica as the name implies; *Leodorus*; *Ægidion*; *Lapponica*; and *Ægiades*, all Erh. I do not know the distinction of them.

AN ENTOMOLOGICAL RAMBLE.

By S. L. MOSLEY.

THREE of us having determined upon an outing in pursuit of the beauties of Nature, we fixed upon Saturday, July the 9th, for a rendezvous in Wharncleft Woods. After the cares of business were over, we accordingly took the first afternoon train from Huddersfield to Penistone. O, how delightful to the naturalist, when thus starting out for a few hours pleasure. No one like he can appreciate the bright sunshine, the green woods, and the crystal springs. The sunshine is to him the giver of life and joy, the woods are his home, and the spring is the fountain of life, pure, untampered with by the hand of man.

But let us look round. In the third class compartment are several passengers besides the three entomologists whose acquaintance you are about to make. There is John Thomas and his fair companion. They have decided to have a stroll through the country. He, and perhaps she too, have been shut up in a factory for ten hours every day since Monday, and home cares have kept her at least, close in the evening, so that is quite a relief, a new life as it were, to go out to the country for a few bright hours, to breathe

the pure air, gather nosegays of honeysuckle and wild roses, or

"breathe the tender tale
Beneath the milk-white thorn
That scents the evening vale."

Yet even pleasant as it is, how much more pleasant could that ramble be made if they could only properly appreciate the beautiful lessons and stories which Nature has to unfold. Those two which sit opposite have got their bats and wickets, and are off to a cricket match. The only objects which attract their attention are cricket fields and players, which we can see at intervals along the line side. Of course, they look with a great amount of query on our bags and nets, and when a bag is opened and half-a-dozen pill boxes tumble out their wonder is increased, and they, no doubt, think we are off upon some "silly game." That man has got the gout; he is going to Dr. Somebody to see if he cannot give him a draught that will do him good. Oh! Mr. Gout, if you would only go with us you would get a draught that is a never-failing remedy against your complaint. Naturalists are never troubled with gout, unless they be "closet naturalists."

But we have arrived at Penistone. Let me describe the route we took. Leaving the station yard we turned along the turnpike road in the direction of Sheffield, and upon enquiry, found that we had between five and six miles before us ere we found ourselves at Wharncleft. We had an object in walking this distance, and that was to beat the hedges, &c., along the road-side for larvæ, but there came on a drizzling rain, which prevented our operations in that line. We, however, picked up a few larvæ of *V. urticae*, several very beautiful specimens of *P. V-aureum*, and a few other things, and by seven o'clock had arrived at the first porter's lodge, the entrance to Wharncleft Park. Seeing an announcement in the window, we went inside where we had a "refresh" by way of a bottle each of "ginger ale." Wharncleft Crags and Woods are the property of Lord

Wharnclyff, and the public are admitted on Mondays, Wednesdays, and Saturdays, the consequence being that on these days during the summer the grounds are visited by numerous pic-nic parties who go for a day's pleasure; and I hope, and have no doubt, that few fail in their object.

We then crossed the park, and after having had a chat with the groom at the other lodge, we set out for our sugaring-ground. In searching out the best part of the wood, we came across several newly-emerged specimens of *M. margaritata* in the most beautiful condition, and so green that I at first took them for *Papilionaria*. We also found *V. cambricaria*, and no doubt could have found many more, but the grass and fern were very wet.

Having picked out a drive, we began to lay on the sugar, and did a good long stretch along one of the main drives. By the time we had done the last tree, we found the moths had begun to come in swarms, so we lit our lamps and began to capture. *H. nebulosa* swarmed. *H. herbida* was common, and in the finest condition. *T. deversa* and *batis*, a few; *C. fluctuosa*, one; *N. C-nigrum*, a few. *N. plecta*, *festiva*, *augur*, *T. pronuba*, and other common things, made up a perfect swarm upon every patch of sugar. About ten o'clock a pic-nic party came down the drive, to go by the last train; and the enquiries from one and another were numerous as to what we were doing, until at last one young lady, rather sharper than the rest, suddenly discovered that we were "catching flies." We worked the sugar well, and as some clock was striking twelve, we had just filled our last box all with picked specimens, so we thought it was then time to set our faces towards home.

The distance had to be walked, as the last train had gone long before, so we set out through the wood in what we thought a likely direction. We walked some distance without finding a proper road, until we came

to the railway, we walked along that until we came to a signal box that was lit up, then mounting, we enquired of the signal-man where we could find a road, and he very kindly instructed us. Following the line, one of the party observed a bright spark among the grass, which upon being approached, proved to be a very bright glow-worm. Picking it up and taking out my watch I had no difficulty in seeing the time, which was just twenty minutes to one. A little further and we turned through a stile, went down the wood, and found a bridge across the river. The bridge, however, had high gates upon it, which were locked, so we had to scramble round some iron spikes which stood out on each side, and in a few minutes found ourselves on the highway, and soon came to a mile-stone, indicating 18 miles to Huddersfield. We now set to with renewed vigour, sometimes leaving the highway, in order to obtain "short cuts," our main guide being the North star.

It was never perfectly dark, and moths seemed to be flitting about all night. About two o'clock we met a "boy in blue," who made the usual enquiries as to what we were doing out at that hour. We told him, but I am doubtful if he believed us. By two o'clock the larks were up and had begun to sing. Very soon we heard the lapwing's well-known notes, and before sunrise there was a full chorus of merry voices. The first person we saw astir was a woman coming out of a farm house, so we enquired if we could be supplied with milk. At first she said not, but after hearing that we had walked so far, she managed to find us a quart; but on asking for bread and butter, we were told that the mowers had eaten them up the day before, so we had to content ourselves with the milk, and then tramped on, arriving at home about half-past eight on the Sunday morning, well tired, but still well satisfied with the results of our journey.

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The YOUNG NATURALIST :

A Penny Weekly Magazine of Natural History.

No. 92.

AUGUST 13TH, 1881.

Vol. 2.

LAND AND FRESH WATER SHELLS.

WE were asked some time ago to give some instructions for Conchologists. Other matters were more pressing at the time, but the opportunity seems to be afforded now. Land and fresh water shells are generally kept quite distinct from marine shells, both in manuals and collections, and many who collect one do not collect the other. Some general hints on collecting marine shells are given at page 190 of the present volume. To-day we will give a few brief instructions for collecting those inhabiting land and fresh water, and afterwards a paper on their preparation and arrangement.

The scarcity of species of Land Shells is perhaps not so noticeable to the casual observer, in consequence of the great abundance of some species, such as *Helix aspera* and *nemoralis*, which appear to occur almost everywhere. You will soon learn however, that without careful searching you will not find any but a few of the larger and more conspicuous species. Make your mind up then that you will "leave no stone unturned" to find the objects of your desire. Many of them are extremely minute, so small

indeed as to need a lens for their determination. Suppose you begin in this wood. Examine first the trunks of the trees. A careful examination will almost certainly give you *Clausilia perversa*, which is common in most places. It is about half an inch long, and has the whorls of the shell reversed, or as a little girl said the other day, "it has been twisted the wrong way." It is rather conspicuous on a beech-tree trunk, for the spire of the shell stands off at an angle. In the south of England other species of *Clausilia* may be found. Some of the genera *Helix*, *Bulimus*, &c., also climb trees, and may be found outside the bark, while others should be sought in the crevices, or concealed under it altogether. Now examine the loose soil and fallen leaves about the roots, particularly in the crevices or interstices where the roots are appearing above the surface. If there are any fallen trees or branches about, turn them over, and look closely for the small species that prefer such places. Where moss has grown about the trunks, examine carefully underneath it, and also shake it well to get out any shells that are living among it.

Hedgerows are also productive of several species. The long grass or other

vegetation should be sought among, and where there are any stones, they must be turned over. In some places stone walls are substituted for hedges. These, especially in damp places, often become overgrown with moss, and the diligent collector will find many specimens among or under it. The edges of streams are productive in more ways than one. Here, under damp stones and among moss will always be found various species that prefer such a habitat. There, among the *rejectamenta* brought down by a fresh, may be collected, not only those species that live among such rubbish, but others, often only dead shells that have been carried by the stream from a greater or lesser distance. Follow the stream to the sea, and on the muddy flats, among the rushes and coarse herbage, a few species not to be had elsewhere may be obtained. If there are not many kinds the number of specimens to be found in such a locality will make up for the deficiency.

All snails love moisture. The heat of the sun is to them certain death, and neither in the bright sunshine, nor in any dry, droughty place, need these be looked for with much hope of success. A heavy dew or a shower of rain will bring them out, and then is the time to look for them. In damp woods they may be found at any time. It is no wonder then with their love of moisture that very many are inhabitants of water. About one-third of the univalves and all the bivalves live in that element. To collect them, rather different means are required. The bivalves live in the mud

of ponds and streams, and some kind of dredge is needed to obtain them. Perhaps a tin one, made something like the domestic article called a colander, which is a tin dish perforated with holes at the bottom, is best, because you need to bring to the bank both mud and stones from the bottom of the pond as well as plants growing in the water. To this instrument a handle must be affixed, and then push it among the mud, &c. Bring out all you have got, your prey are not quick in their movements, and cannot escape you. Now wash away the mud, shake the plants, examine the stones, and if you are right in a choice of place, you are sure to get many species. We have seen the larger bivalves brought out by inserting a pointed stick between the open valves. They close instantly on the intruder, and lead to their own capture by their effort to save themselves. Many of the univalves, such as the genera *Planorbis*, *Lymnæa*, &c., may be seen on a calm evening floating on the surface of the pond on their outstretched foot. These may be taken by any net similar to those used by Entomologists.

A hint or two as to localities and our space is exhausted. The South of England is much more numerous in species than the North, and "the chalk" will be found most productive. Next to chalk, are limestone districts. It is well known that these soils produce a larger number of plants than others. Entomologists know that this variety of plants gives them more species of

insects. So Conchologists find Calcareous soils also are richest in species. For water shells, ponds and slow streams are best. For land shells, damp woods or other places where their love of moisture can be gratified.

During winter most of the species, if not all, retire for hybernation. Then they may be found sometimes in great numbers under stones, bark, decaying vegetation, &c., &c.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY Beaumont Park, Huddersfield.

WE have to thank Mr. F. KERRY, of Harwich, for specimens of Reed Wren and young, and also for the common Swift, sent for figuring in our Bird Book.

NOTES, CAPTURES, &c.

THE HOODED CROW AT HARTLEPOOL, IN JULY.—On Thursday, the 27 July, when returning from Black Hall Rocks, I disturbed a specimen of the Hooded Crow, that had been feeding on the Sand-hills. I watched it for half-a-mile or so, and it flew to a wooded ravine called Hezleden or Crimdon Dene. Probably it had a mate there. Though no Ornithologist, I have noticed these birds on their winter visit for very many years. Last winter they were unusually abundant, and owing to the long continuance of severe weather, they stayed very late with us; but I never before saw a specimen remain over the breeding season. JOHN E. ROBSON, West Hartlepool.

HERMAPHRODITE A. PAPHIA. It may interest the readers of the *Young Naturalist* to

know that I captured on July 17th, a hermaphrodite specimen of *A. paphia*. The right wings are like the male, and the left wing like the female, both in colour and markings.—H. ROBINSON, Coventry.

ABUNDANCE OF LARVÆ OF *D. VINULA*, &c. We were out last night and took about 50 larvæ of this species, and a quantity of *S. populi*. We also got 12 larvæ that I take to be *N. dictæa*. Is not that a great quantity to be taken at once?—A. BRAMWELL, Gateshead.—(The larva of *N. dictæa* is greenish white on the back, shading into green, with a yellow stripe above the spiracles. It is very bright and glossy, and cannot be mistaken for any other Poplar feeder.—Eds. Y.N.)

"THE SPRING MIGRATION OF BIRDS AT ST. LEONARDS."—This is the title of a most interesting paper sent us by its author, Mr. J. H. Gurney Jun., F.L.S. It contains a host of valuable little facts, gathered and placed in a most readable form. By such observations alone can the natural history of a species be fully made out.

EXCHANGE.

Larvæ of *D. vinula*. DESIDERATA, very numerous.—A. BRAMWELL, Prior Street, Gateshead-on-Tyne.

DUPLICATES.—*Geryon*, *Rumicis*, and var. *Combusta*, *Festiva*, *Testacea*, *Graminis*, *Oleracea*, *Gemina*, *Cubicularis*, *Augur*, &c. DESIDERATA, very numerous.—TOM ROBSON, Bellerby Terrace, West Hartlepool.

DUPLICATES.—*L. ferrugineus*, *D. salinus*, *æneus*, *B. cephalotes*, *C. mollis*, *A. oblongus* and *Thoreyi*, *D. pubescens*, *P. chalcus*, *Phaleria cadaverina*, *D. lemnae*, *S. polygona*, *A. tanacetii*, and many other common species. DESIDERATA.—Lepidoptera or Coleoptera.—W. H. BENNETT, II, George Street, Hastings.

CONTRIBUTIONS TOWARDS THE FAUNA OF PLYMOUTH.

BY MR. G. C. BIGNELL, M.E.S.

(Reprinted by permission of the author from the Transactions of the Plymouth Institution and Devon and Cornwall Natural History Society, 1881.)

HYMENOPTERA, ICHNEUMONIDÆ.

Arranged according to the Rev. T. A. Marshall's Catalogue, published by the Entomological Society of London, 1872.

PART I.

(Continued from page 208.)

ICHNEUMON.—

submarginatus.

nigritarius, bred from *Abraaxas grossulariata*.

coruscator.

jugatus, bred from *Tephrosia extersaria*.

vacillatorius, bred from *Depressaria heraciana* (12th August, 1878.)

oscillator.

ridibundus, taken at Laira.

EXOPHANES.—

occupator.

AMBLETELES.—

palliatorius.

oratorius.

castigator.

funereus.

proteus, bred from *Chærocampa elpenor*.

TROGUS.—

lutorius, bred from *Sphinx ligustri* out of larva taken at Stoke.

Alboguttatus, bred from *Orygia pudibunda*.

(To be continued.)

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y.N.)

MEDON, Esper. } Pl. 20. Fig. 4.
AGESTIS, W.V. }

The Brown Argus.

"AGESTIS, W.V., *Ages'tis*; perhaps a typographical error for *Agrestis*, a rustic."—A.L.

MEDON, the 17th and last King of Athens, was the son of Codrus.

Imago.—Pl. 20, Fig. 4. VERY DARK GOLDEN BROWN, with or without a row of orange spots at the hind margin, a black or white spot at the disc of forewing, sometimes on all wings. Underside, greyish brown, with black spots in white rings, none of which are nearer the base of the forewing, than the central spot; a row of orange spots at the hind margin.

Larva.—"Lively pale green, finely white haired; the head black; the dorsal line purplish brown, with two very pale oblique lateral lines and broad purplish-red lateral swellings." (Prof. Zeller, in Stettiner Ent. Zeitung, 1868; translated in Ento. M. Mag. Vol. v., page 187.)

Pupa.—"Slightly polished pale green, on the back darker and purer; on the abdomen paler, and shading into yellowish, on the wing covers whitish." (Prof. Zeller, as above.)

Food Plants.—Common Sun Cistus (*Helianthemum vulgare*), and Herons' Bill (*Erodium cicutarium*). The curious fact that this larva feeds on a different plant in this country, so far as is known, to that selected on the continent, helped by a mistake as to the larva itself, prevented Entomologists for a long time from deciding that the various forms (*Medon* or *Agestis*, *Salmacis* and *Artaxaxes*) were but local races of one species. That it was so, was long suspected, and latterly believed in by almost every one, but it could scarcely be said to be settled until 1879. A brief history of the matter seems to come appropriately under this head. I do not know the earliest authority for the statement that *Erodium* was the food plant of the larva, for Mr. Westwood admitted he had copied it and had forgotten his authority, and he is given as the authority in Stainton's Manual. In the Zoologist, for

1858, Mr. H. J. Harding claimed to have discovered the larva "about eight years ago" on *Erodium*, and though he probably did so, some larvæ he sent out as this species produced a weevil (*Hypera fasciculata*). Mr. Logan, I believe, was the first to describe the larva of the Scotch or *Artaxerxes* form of the insect, which he had found feeding on *Helianthemum vulgare* at Arthur's Seat; and the two forms are described in Stainton's Manual as distinct. Mr. Logan showed Mr. Harding a coloured drawing of the larva, but Mr. Harding thought it did not agree with those he had found. This, which tended to increase the probability of their distinctness as species, was most likely an error caused by Mr. Harding comparing the larva of the weevil, with the drawing of that of *Artaxerxes*. Mr. Wailes, of Newcastle-on-Tyne, about the same time (1858) made some careful investigations on the subject, and found, that while the insect occurred in some places where the *Erodium* was not known, the *Helianthemum* was found wherever the insect was taken. He traced the insect from Scotland into the South of England, and ventured to prophecy that "the *Helianthemum* will as surely prove to be its food as its presence indicates the place of flight." So the matter stood until 1877, when I was fortunate enough to find five larvæ feeding on the *Helianthemum*, at Black Hall Rocks, Durham County—the *Salmacis* locality—from which Mr. Buckler actually reared all three forms of the insect. In the autumn of the same year, Mr. W. R. Jeffery captured several females in Kent, when ovipositing on the same plant, from which he procured a number of eggs. Mr. Buckler successfully kept these over the winter and they pupated in May, 1878. This was a proof that, in a state of nature, they would feed on *Helianthemum*, even in that part of the country where they had been said to feed on *Erodium*. Mr. Newman states, on the authority of "Mr. Young, of Edinburgh,"

that larva of *Artaxerxes*, bred from the egg, "preferred the leaves of the Scarlet Geranium to those of the Sun Cistus." I do not know what plant is meant by the "Scarlet Geranium"; but if it be *Geranium sanguineum*, it grows abundantly here, along with the *Helianthemum*; but it also grows freely on the sand banks where *Helianthemum* does not, and the range of the butterfly is co-terminous with the Sun Cistus. On the other hand, Professor Zeller saw the female deposit her eggs on the *Erodium*, and reared the larvæ upon it. He also states that larva of *Artaxerxes* sent him to Meseritz, by Mr. Henry Doubleday, and which had undoubtedly eaten the *Helianthemum* on their journey, refused the fresh food with which he supplied them on their arrival. This is a most singular fact, and it remains yet to be seen if any British larvæ will eat *Erodium*, or any Continental larvæ *Helianthemum*.

Times of Appearance.—In the South of England the butterfly appears at the latter end of May, or in June, at the end of which month it may be found in more Northern localities; the larvæ are to be found in June or July in the South, and the butterfly is again on the wing in August. The larvæ of this brood hybernate to reappear in April or May. In the North there is but one brood, the larvæ of which pass the winter quite small, to feed up in the spring. In this neighbourhood there are two broods, but the variety *Artaxerxes*, and the intermediate form *Salmacis*, are rarely produced, except from larvæ that have passed the winter in that state.

Habitat.—It appears to be generally distributed in England, several localities are given in Scotland, and it has been taken in Ireland. It seems to prefer dry sunny banks. Mr. Owen Wilson says that it occurs in Scotland only, which is evidently a blunder. Abroad it is found throughout Europe, and the greater part of Asia.

Variation.—This little butterfly varies in the absence or presence of a row of orange spots at the hind margin, on the upper side of all wings, of a black or white spot at the centre of the fore wings, and of black centres to the spots on the underside. The band of orange spots used to be considered characteristic of specimens from the South of England, but it is often well developed on those taken in the North of England. The type may be considered to be those butterflies that have these spots very distinct, a black spot at the disc of the fore wings, and black centres to the white spots of the underside. The var. *Artaxerxes*, Fab. has the orange spots wanting or very indistinct, the disc spot white, and the white spots of the underside without black centres. The var. *Salmacis*, Steph. is an intermediate form; has the orange spots less vivid than the type, a black disc spot, but the white spots of the underside without black centres. Staudinger names other two forms: *Allous*, Hb., and *Æstiva*, Hb., the former all fuscous above, and the latter (a variety of the second brood), brown on the underside—of this form I have taken a specimen this season. Kirby gives another, *Callida*, Bell., occurring in Corsica; I do not know how it is distinguished. Aberrations sometimes occur in which the spots on the underside vary. I have one that has the central spot only, one without this is figured by Mr. Mosley in his Illustrations, where there is also a figure of a specimen taken by Mr. Carr, in which the spots are elongated into streaks, a form of variety noticed in several other species of the genus.

Note.—It cannot cause surprise that this little butterfly has had many names. Lewin, in 1795, called it *Idas*, which name was also used in 1803, by Haworth. Stephen's, in 1831, adopted the name *Agestis*, S.V., by which it continued to be known for a long time, and which is still used in many

catalogues. Newman, in 1871, uses Esper's name of *Medon*. Staudinger in the same year proposed to call it *Astrarche*, Bergsträsser; while Kirby, also in 1871, calls it *Aleaxis*, Scop. If the *Aleaxis* of Scopoli really be the species under consideration, this name must stand, as it dates from 1763. If not, Esper's name of *Medon* has priority over *Astrarche*, the former dating from 1766, and the latter from 1779. *Agestis* was first used in 1776.

WINGS OF BUTTERFLIES.

See Plates 23 and 25.

IN order that our young readers may understand something beyond the mere names of species, if they disposed, we have taken the liberty of copying in plates 23 and 25, a "plate of details," from the well-known work "The Genera of Diurnal Lepidoptera," by Messrs. Doubleday, Westwood, and Hewitson. We thought it better to copy the figures from a standard work like this, rather than give others, though possibly some might have been selected that would be more closely related to our British species. We wish our readers to know the names of what have been, not very appropriately, called the "wing bones" of Butterflies, and by a careful comparison of these figures, we hope they will learn something of their construction.

We will first give the names used for the various "bones," and the references. Figure i. and iii. pl. 23, v. and vii. pl. 25, represent the fore wings of four different butterflies.

- a Costal nerve
- b Sub-costal nerve
- b₁, b₂, b₃, b₄, b₅. Sub-costal nervules
- c₁, c₂. Discoidal nervules
- d Median nerve
- d₁, d₂, d₃. Median nervules
- e Sub-median nerve

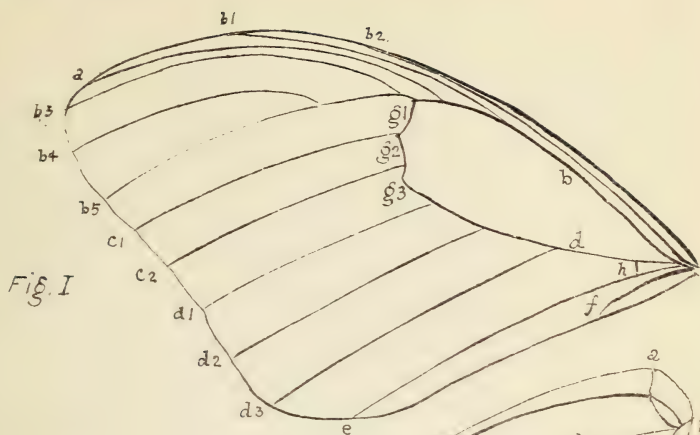


Fig. I

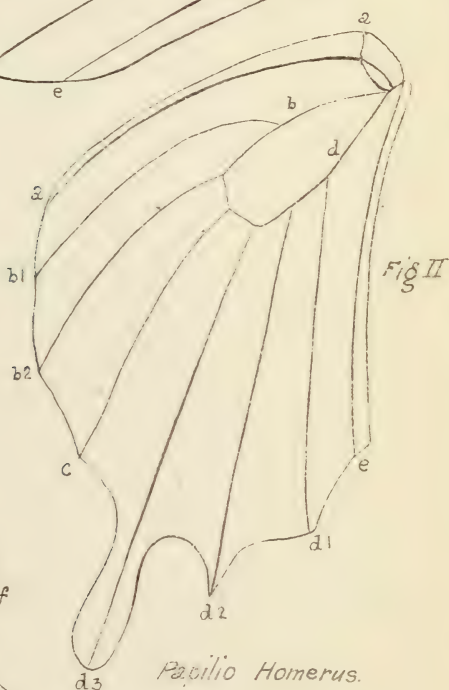


Fig. II

Papilio Homerus.

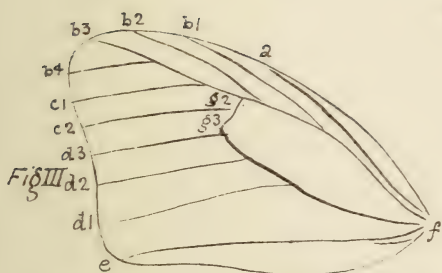


Fig. III

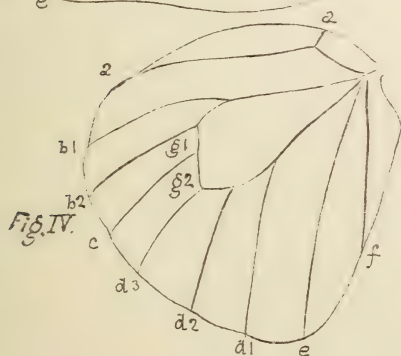


Fig. IV

Gonepteryx Leachiana.



- f* Internal nervure
- g* Rudiment of the discoidal nervure
- g1* Upper disco-cellular nervule
- g2* Middle disco-cellular nervule
- g3* Lower disco-cellular nervule
- h* Interno-median nervule.

Figure ii. and iv. pl. 23, vi. and viii. pl. 25, represent the hind wings of the same species.

The additional references are as follows:--

- a* Precostal nervure
- c* Discoidal nervure
- g1, g2* Upper and lower disco-cellular nervules

The others are as in the fore wings.

We would call attention to the fact that when they spring from the *base* of the wing they are called NERVURES, when they spring from *nervures* they are called NERVULES.

Perhaps the more minute explanations, given in the work we quote from, may be little use to many of our readers, but they may be useful to some of them in time to come, when perhaps our authority cannot be consulted. We therefore proceed to point out the differences and peculiarities in the wings, taking the information from the work in question, but using our own words.

Taking the forewing of *Papilio Homerus*, Fig. 1., as our standard, and remembering that the same letters and figures have the same significance in all, it will be seen that in the forewing of *Gonopteryx Leachiana*, Fig. iii., there are only four nervules (*b* 1, 2, 3 and 4) to the Sub-costal nervure, instead of five as in *P. Homerus*. The upper Disco-cellular nervure is wanting, and therefore the first Discoidal nervure is united to the Sub-costal nervure. The Internal nervure is very slender, and runs to the Sub-median instead of to the inner margin. There is no Interno-median nervule.

In the forewing of *Morpho Perseus*, Fig. 5, though all the nervures and nervules are the same as in Fig. 1., some of them are in very different positions, especially the Disco-cellular nervules.

In the forewing of *Mechanitis Lysidice*, Fig. vii., the greatest difference is the presence of a rudiment of Discoidal nervure, (*g*), which is entirely wanting in all the others; the lower Disco-cellular nervule is also bent at an acute angle.

In the hind wings there are two *a*'s, the second one marking the Pre-costal nervure. In Fig. 1., this Pre-costal nervure is bifid, its lower branch being united at its termination to the costal nervure. Our authority observes "It is this nervure which in a great proportion of the Heterocerous Lepidoptera, projects beyond the margin of the wing, in the form of a single stout bristle in the males, of several weaker ones in the females, which are received into a more or less distinct one on the underside of the anterior wing. This structure *never* exists in the Diurnal or Rhopalocerous Lepidoptera, although, for nearly seventy years, most British writers on the Lepidoptera have persisted in stating its existence in the male of *Apatura Iris*." The discoidal nervure (*c*) is always simple in the hind wings, there can therefore never be more than two Disco-cellular nervules. (*g1, g2*.) one or both are frequently wanting, see Fig. vi.

In Fig. iv. the Precostal nervure is simple.

In Fig. vi. the Precostal nervure is also simple. The Discoidal nervure is united to the second Sub-costal nervure, and appears to be a third Sub-costal nervure. There is therefore no upper Disco-cellular nervure. The lower Disco-cellular is also wanting, and the cell is consequently open.

In Fig. viii., the Precostal nervure is also simple. The Costal and Sub-costal nervures are united for about half their length, a structure that only occurs in the female. The upper Disco-cellular nervule is bent at an acute angle, and the lower one so placed as to cause the Discoidal nervure to appear to be a fourth Median nervule. In this figure, as in the forewing, Fig. vii., we find the rudiments of a Discoidal nervure, (*g*).

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Fig. V.

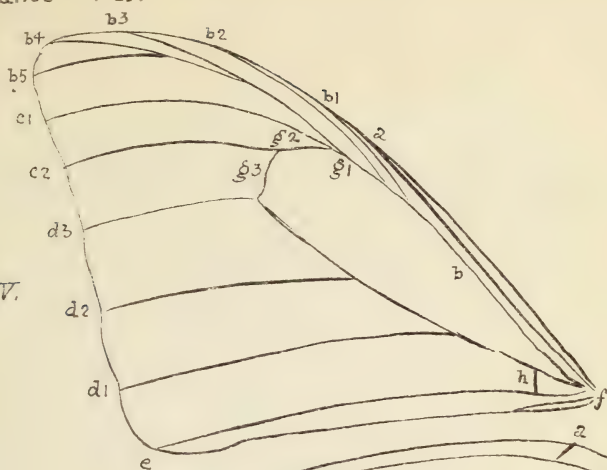
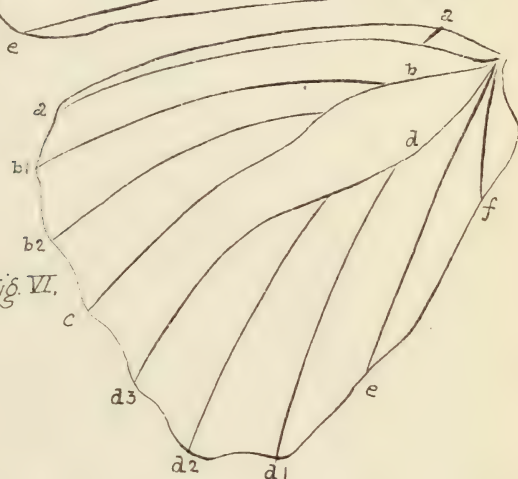


Fig. VI.



Morpho Perseus.

Fig. VII.

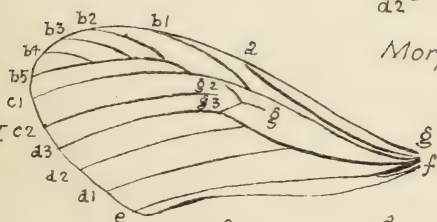
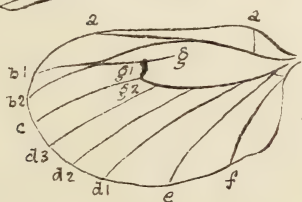
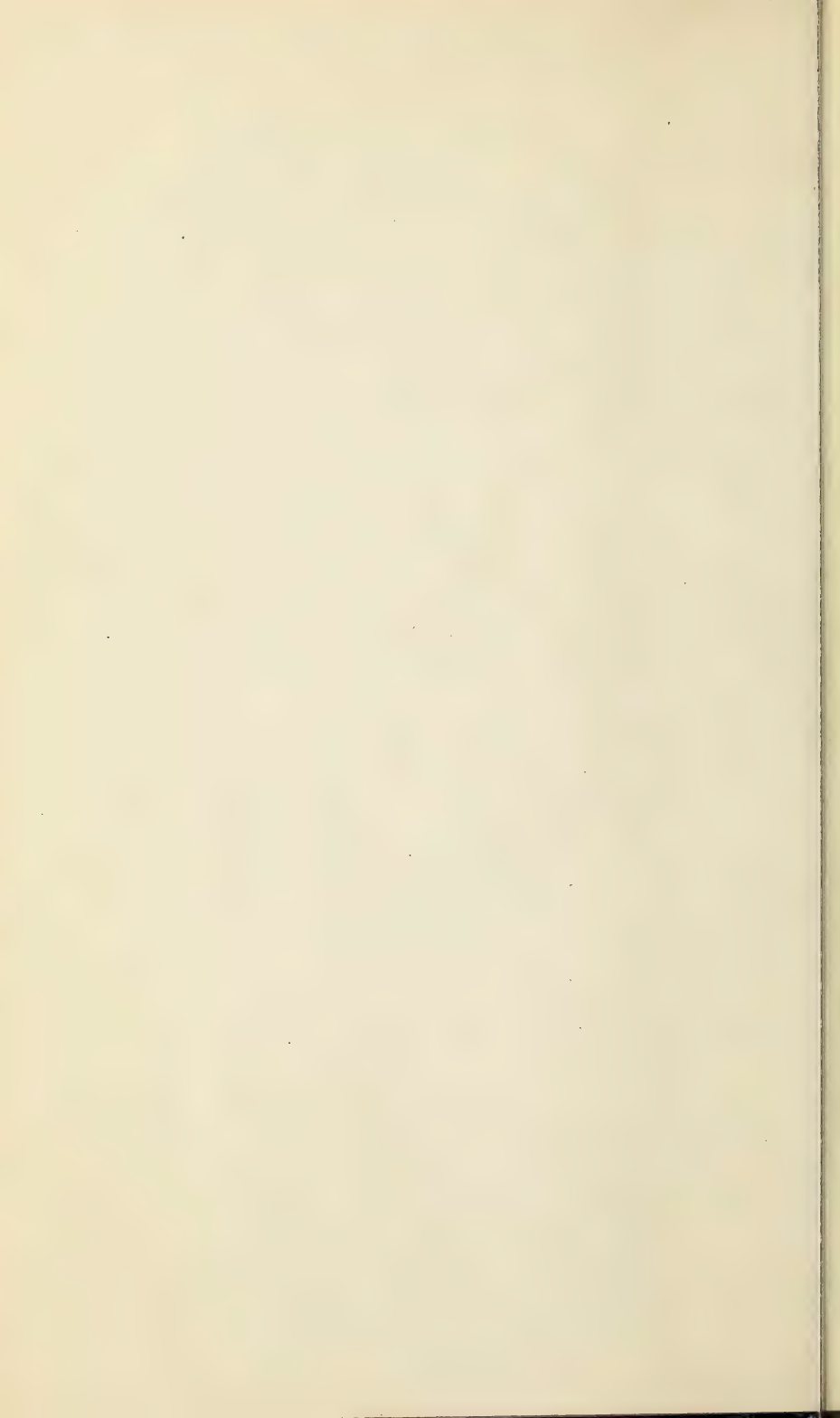


Fig. VIII.



Mechanitis Lysidice.



The YOUNG NATURALIST :

A Penny Weekly Magazine of Natural History.

No. 93.

AUGUST 20TH, 1881.

Vol. 2.

COLLECTORS AND COLLECTORS.

No. 1.

THAT there are Collectors of more than one species, there can be no doubt. Nay, there is that much difference between one and another as almost to be generic. There is the collector of the type called "Young Barnes" in the days of the "Intelligencer." He works hard in a way. Let him find out where a good insect may be had, and you will see him there every day till it is over. When the time for larvæ comes round, he is there again, taking all he can find. Then he will try for the pupæ, and should any escape him in their early stages, he is safe to get the imagines. Next year, his informant goes for a series for a friend—he cannot find any; they are all gone, and he wonders what has caused their sudden disappearance. The exterminator, if of the Young Barnes type, does not say anything about his success. He has a store box full of the rarity, and he watches the announcements of "Exchange" with a price list in his hand. When he sees a species announced as in duplicate that he has not got, and that is *priced at more money* in the dealer's catalogue, he offers his

specimens in exchange. Of course he drives a hard bargain, he must have the same number at least in return, more if he can get them. They must be in perfect condition, and should one of them lose an antennæ or two in transit, he will carefully knock off an equal number from the insects he is returning, so that his correspondent shall not have the best of the bargain. He hears that another rarity has occurred in his neighbourhood. The person who has found it has not made the locality public, but our friend offers him a series of *his* rarity for a disclosure of the locality for the other. Not that he wants more than a series. O dear, no! But he has such a desire to have as many specimens in his collection, of his own taking, as he can possibly get. He will promise not to reveal the locality, &c., &c. At last he prevails: the disclosure is made: another store box of rarities is in his possession, and another rare or local insect is almost exterminated. Some species may be cleared out in a season, others take two or three, or even more; but while there are any to get at all, our friend is there with net and boxes; and even if the specimens are so wasted as to be worthless,

they are taken away, lest they reveal the place to some one passing.

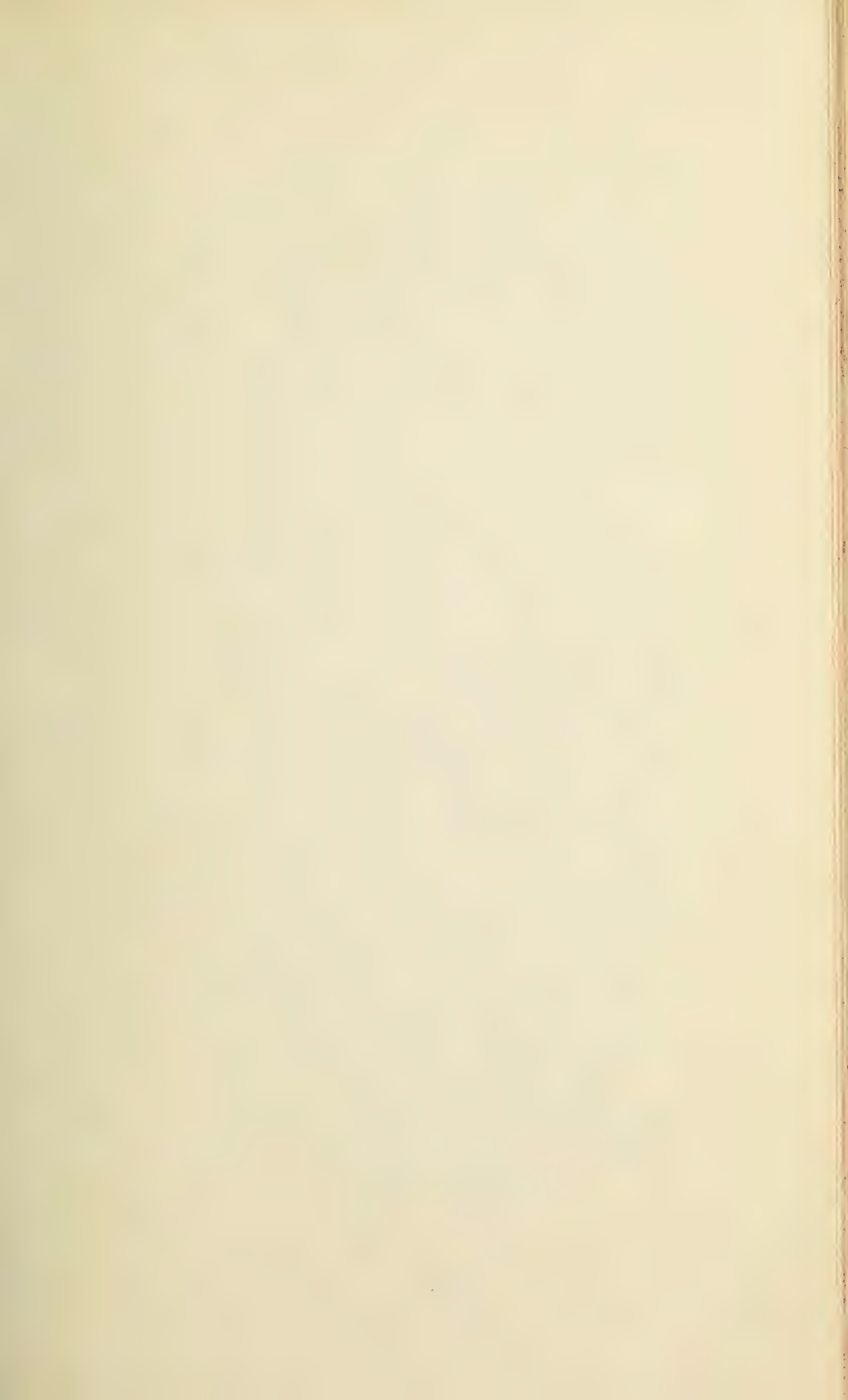
In ten years this gentleman has a fine collection, rich in rare species, rendering him the envy of a chance visitor who calls in to look over his drawers. Ask him about the fauna of his district, and you are astonished that one who has his cabinet so well filled knows so little of the species that occur in his own neighbourhood. He can tell you where so and so *used* to be taken. He captured and bred a great many *some years ago*. Yes, he has a duplicate or two yet, he believes, but he wants a good exchange for them, they are so very rare now. They have not been taken about there for a long time. No, he really does not know if that is found near. It is only priced fourpence in Meek's list, and he never cared to take common things. It was no more trouble to take a rarity when you knew where to get it, and he could get several series of those common sorts for a single rarity. Ask about another species, again he "doesn't know," and you soon find he knows nothing at all. He has worked hard for one or two good things, and with good bargaining and some unscrupulousness, he has filled his drawers with the proceeds, but as to any *knowledge* he has none. Shreweder even than the "Young Barnes" of old, he has not taken any common things "in case they should become rare some day." His whole energy has been given to the acquisition of a long series of a few rare

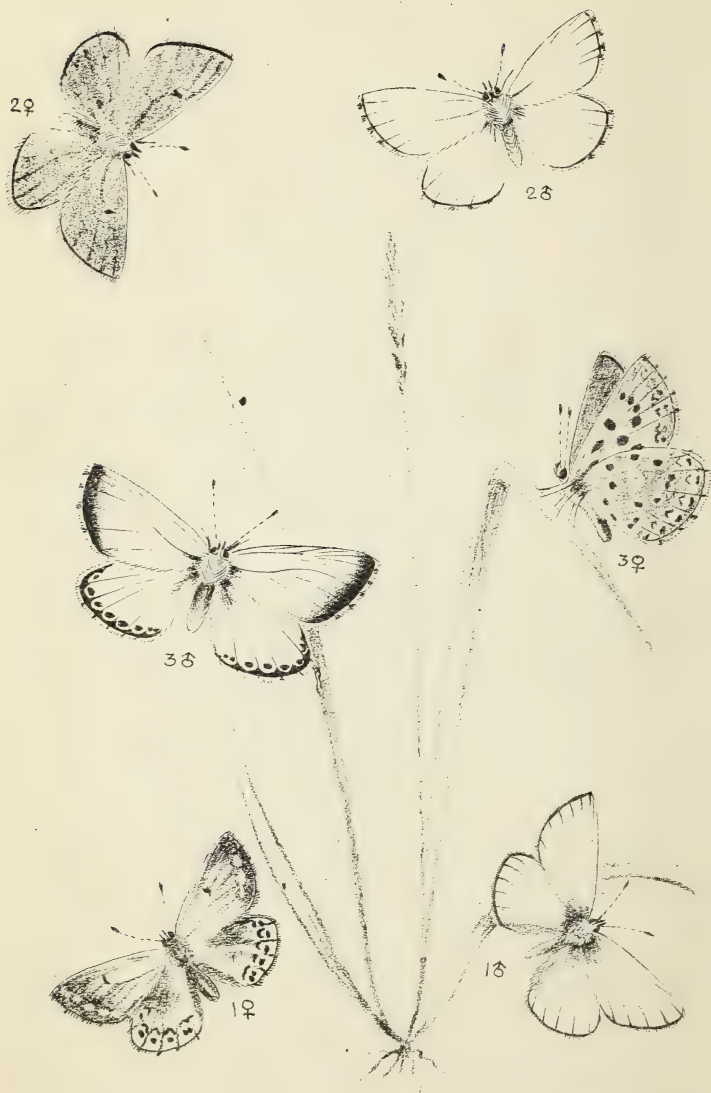
insects that once rendered famous the locality in which he resides. The young collectors round about look up to him as an authority it is true, though they admit he never gives them anything, and never tells them very much, but his collection is so good that it gives him an amount of prestige difficult to overcome.

In twenty years he has ceased to be counted as an Entomologist. When there were no more good species to exterminate, his interest in collecting ceased. His remaining duplicates, for he has some yet, are old looking and terribly mite-eaten, and no one cares to exchange with him. Indeed there are not many species that he wants, and he has been found out or suspected by most of his old correspondents. His drawers are rarely opened, and the mites revel in darkness undisturbed. Beyond the mere acquisition of specimens he never had a desire. He went to work in the most business like way to make a collection. If he had gone to a dealer's and purchased his specimens he could not have known less of the life history, the habits, &c., of most of them. To the title of Naturalist he never had a shadow of claim. To that of Collector he had but very little, and those who have met such a character will agree that he quite deserves to be classed under another genus.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY Beaumont Park, Huddersfield.





P. Alexis. 1
 „ Adonis 2
 „ Corydon 3.

EXCHANGE.

DUPLICATES.—Larvæ of *Nebulosa*, *Thalassina*, *Lubricipeda*, &c., and many imagos. DESIDERATA.—Other larvæ, also *Papilio* (Swallow-tails), from any part of the world; damaged specimens will do, if not faded or worn.—S. L. MOSLEY, Beaumont Park, Huddersfield.

DUPLICATES:—Larvæ of *S. Populi* and *H. Pisi*. DESIDERATA:—Numerous.—A. Bramwell, Prior Street, Gateshead-on-Tyne

DUPLICATES.—Larvæ of *D. vinula*. DESIDERATA.—Numerous.—JOHN D. BLAND, Jun., 24, Windsor Terrace, Gateshead.

DUPLICATES.—*Paphia*, *Adippe*, *Selene*, *Semele*, *Quercus*, *Albicillata*, *Sylvata*, *Ulmata*, *Leucophearia*, *Wavaria*, *Satellitita*, and *Gonostigma*.—I. LISSAMAN, 1, Court, 5, House, Allott's Lane, Coventry.

NOTES, CAPTURES, &c.

ABUNDANCE OF WHITES, &c.—On July 12th, 1881, I saw two or three white butterflies flying about in Alerton Quarry. I went down with my friend, J. B. Ledd, to try and catch them to see what they were. On our way down we happened to shake a bush, and from it arose a large number of whites. My friend and I shook all the bushes we could get at, and I should think there was no less than two hundred whites in the air at the same time. They began to settle again, and in a short time a heavy shower came on, and after the shower we could pill-box them without any difficulty. We caught forty-nine, and found them to be thirty-two small garden whites, *Pieris Rapæ*, and seventeen green-veined whites, *Pieris Napi*. I kept six of each and let the rest go.

I also caught on the same day one small tortoise shell, *Vanessa Urtica*, one yellow underwing, and one tiger moth.—J. H. VASHLEY, 64, Troughton Street, Edge Hill, Liverpool.

MANNER OF ATTACHMENT OF THE PUPA OF *P. BRASSICÆ*.—The other day I had the opportunity of watching the manner in which *P. brassicæ* fastens its tail to the knot of silk spun by the larva. After having got the old larva skin rolled in a lump at the anal extremity, the tail end of the pupa is withdrawn from the larva skin, and wriggling about catches hold of the silk, and by a few twists fastens itself to it, the old skin being then completely cast off.—S.L.M.

Now is the time for gathering ferns, mosses, lichens, and fringe for decorating cases of stuffed birds. The common fern or "Brake" has assumed various tints of yellow, orange, green, and red, and the most perfect fronds will only need breaking off, and putting between the leaves of a book to press. They will retain much of their colour, but if they are required brighter, any tint may be obtained by the application of colour mixed with turpentine. Mosses and lichens will simply need laying out on sheets of paper and drying, and a few of the harder kinds of ferns may be treated in the same way. The flowers of grasses have most of them got too far advanced, but rushes and carices, as well as the leaves of the wood rush (*Luzula sylvatica*), may be gathered and pressed between the leaves of a book.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by S. L. MOSLEY.

(Assisted by Contributors to the Y.N.)

ALEXIS, W.V., Pl. 22, Fig. 1.

The Common Blue.

"ALEXIS, W.V., *Alex's*, a Roman Shepherd. Cf. Virg. Ecl. ii. 1.—A.L.

Imago.—Pl. 22, Fig. 1. Male, Lilac Blue, with a narrow white fringe, not intersected

by the wing rays. Female, brown, generally much suffused with blue, especially towards the base. A row of eyed spots with orange lunules at the hind margin of the hind wing, and a more or less distinct row of orange spots round the hind margin of the forewing. Underside similar to *Corydon*.

Larva.—Green, the segmental divisions and a sunk dorsal line, darker green; a pale, nearly white line above the projecting sides, and several pale oblique lines on each side. Head black.

Pupa.—Dull green, with brownish markings, short and rather stout, nearly as round at the anal extremity as at the head.

Food Plants.—Newman gives "Rest Harrow (*Ononis spinosa*)" as the only food plant of the species, *O. spinosa* is the Spiny Rest Harrow, and is not by any means of sufficiently general distribution to be the sole food of this nearly ubiquitous species. The Common Rest Harrow, or Wild Liquorice (*Ononis arvensis*) is much more abundant, and is one of the plants named by other authors as the food of *Icarus*. It also feeds on Birds-foot trefoil (*Lotus corniculatus*), and Clovers. Owen Wilson also gives Black Medick and Milk-vetch. Black Medick is *Medicago lupulina*, and there are three species of Milk Vetch (*Astragalus*), but none of them are of general distribution. I would advise the young collector, who wants the larva, to give special attention to the Birds-foot trefoil, on which he will certainly find it.

Times of Appearance.—This butterfly may be seen on the wing in May and soon becomes very plentiful, continuing throughout June in great abundance, and never entirely disappearing until Autumn is far advanced. The eggs are laid in June, and probably all through the summer. The

larvæ from these eggs feed up rather quickly, and even by July, the second brood may be taken. It is easily recognized by its smaller size. Late in the year (September or October) very dwarfed specimens are found, which may be a third brood, but this appears very much to depend on circumstances. When the weather is unsuitable, but few even of the second brood appear, and it is probable that the larvæ feed up or hibernate according to the season; the larvæ that live over the winter produce the largest forms. It is said the Scotch specimens of this insect are much larger and brighter than others, and this is probably from the longer period in which they remain as larvæ.

Habitat.—Except a few places in Yorkshire, this species is abundant all over the British Isles. It frequents lanes, railway banks, meadows and pastures, and similar places. It is common all over Europe and in Northern and Western Asia.

Variation.—*Icarus* does not vary much in a general way. Specimens occur occasionally that are true hermaphrodites, having the wings on one side male and on the other female. A specimen is in Mr. Gregson's collection, which has the fore-wings male, and the hind wings female. A very extraordinary one was taken at Dover, in August, 1877, and is now in the cabinet of Mr. F. H. Briggs. It has the left side male, and the right side female, except that about two-thirds of the inner portion of the forewing is of the male colour, leaving a strip along the costa of the usual colour of the female. Mr. Mosley calls attention to the curious fact that most of the old specimens have the male colour on the right side, while those of recent years have it on the left. Mr. Steven's has a very pale male, and Mr. C. A. Briggs a very blue female, and other varieties of the upperside exist in other

cabinets. The variety of the underside, which is found in nearly all the "blues," where the spots are elongated or run together into streaks, is not uncommon in this species. Two are figured in Newman's book from specimens in Mr. Bond's collection and one in my collection is figured in Mr. Mosley's illustrations. *Icarinus*, Scrib. has no spots on the underside, between the central spot and the base. I have taken this form several times, and believe it would be found not uncommon if it were looked for. The var. *Persica*, Bienert, which occurs in Persia, as its name implies, is described in Staudinger's catalogue as "Subt. punctis nullis." Several other named varieties are mentioned by Kirby, but I know none of them. They are *Iphis*, Meig.; *Alsus*, var. *Pusillus*, Gerh.; *Labiatus*, *Thestylis*, and *Laeon*, Germ.; and *Eros* and *Icarinus*, Steph; the latter five being British.

NOTE. This species was called *Icarus* by Lewin and Haworth, the name dating from 1775. The name *Alexis*, W.V., was first used in 1776, but Scopoli used this name in 1763 for his var. 2. Whether this should give it precedence I am not prepared to say, but the most recent writers are abandoning it for *Icarus*.

ADONIS, W.V., Pl. 22, Fig. 2.

"ADONIS, W.V., *Adonis*, a young shepherd beloved by Venus. Cf. Virg. *Æn.* x. 18."
—A.L.

Imago.—Pl. 22, Fig. 2. Male, *clear bright blue, with a narrow black line at the hind margin, and fine white fringe through which the wing rays from black lines.* Females, brownish black often suffused with blue; a row of eyed spots with orange lunules at the hind margin of the hind wing, and a row of orange spots more or less distinct round the hind margin of the fore wing. Underside similar to *Corydon*, but the black spots are seldom so large.

Larva.—Deep green. The eight middle segments have raised ribs or humps on each side, making the dorsal area appear depressed. An oblique yellow streak on each of these raised portions. The projecting sides are also yellow, spiracles black, head dark brown. For the resemblance and difference between this larva and that of *Corydon* see the description of the larva of *Corydon*.

Pupa.—I have never seen the pupa of *Adonis*, nor do I know of a description of it. Owen Wilson states that it pupates "just below the surface of the earth."

Food Plants.—Stainton on the authority of Och. says "various papilionaceous plants." Newman names no food. Owen Wilson gives "Tufted horse-shoe vetch." This I suppose is *Hippocrepis comosa*, which is sufficiently confined to the south of England to explain the non-appearance of the species in the north.

Times of Appearance.—The insect appears on the wing in May or the beginning of June. The egg is doubtless laid that month, and the larva should be found in June and July. In August the second brood appears, and the larvæ pass the winter in that state, feeding up early in the year.

Habitat.—In this country *Adonis* is only found in the southern counties, chiefly on calcareous soils. It occurs in the Central and Southern portions of Europe, and in Asia Minor.

Variation.—*Adonis* is an insect that departs from the type in several ways. I have not heard of any truly hermaphrodite specimens; but a female taken at Folkestone, in 1876, is in the cabinet of Mr. C. A. Briggs, that has some dashes of the male colour on the tip of one wing. Females do not seem to be rare that are much suffused with blue, and when wholly so, they are called *Ceronus*, Esp. Others occur in which the spots run

into streaks and dashes, like others of the genus already described. A very light male is in the collection named above, that has no eyed spots on the hind wing, except the central spot. I believe this variety of the underside is called *Cinnus*, Hb. Both Mr. Briggs and Mr. Weston's cabinet contain females of this type, with the underside very dark. One figured in Mosley's Illustrations has no spots but the disc spot on either wing. Two other extraordinary aberrations are figured in the same plate (*Lycæna*, Plate 4). One taken at Torquay, and in the cabinet of Mr. S. Steven's, is a female of a very pale greyish brown colour. The other is so abnormal that it has been thought a new species, and also a cross between *Adonis* and *Phlæas*. It is a very dark bluish black on the upper side, with a bluish grey fringe. The underside is "shot with coppery reflections." It was taken at Folkestone, in September, 1875, and is now in the collection of Mr. W. P. Weston. One other form is named—*Polona*, Z. It occurs on the mountains of Asia Minor. I do not know it, but if I understand Dr. Staudingers contractions rightly it has a broad margin to the fore wings, and the marginal spots to the hind wings, black.

Note.—Both in Staudinger's and Kirby's synonymic catalogue this species is called *Bellargus*, Rott. (1775), with *Adonis*, S.V. (1776), as a synonym.

NOTES ON COMMON DIPTERA.

By S. L. MOSLEY.

(Continued from page 133.)

III. SYRPHIDÆ.

The busy summer with all its active life, and the anxiety to fill up cabinet gaps, must be my excuse for not being more regular in my continuation of these notes, but doubtless

many have picked up specimens which they would be glad to know something about.

Amongst the SYRPHIDÆ are some of our commonest Diptera, and many species may now be obtained hovering about flowers and in other situations. The family is very numerous, consisting of many genera, and are somewhat varied in their habits and structure.

The typical genus—*Syrphus*—contains between twenty and thirty species, and many of them may now be obtained at ragwort and other flowers, but require a quick hand to capture them. I have given the wing of *S. arcuatus*, Fln., to show the venation (see plate 17). In this species the eyes are brown, thorax metallic green covered with yellowish hairs, body blue black with four yellow lunules down each side. *Luniger*, Mg., is very similar, but *Ribesii*, L., which is figured is rather larger, and the two hinder lunules are joined, forming bands across the body. *Balteatus*, Deg., is smaller in the body, which has a narrow band and a broad one alternately, the yellow forming the bands being darker than in the other species named. *Bifasciatus*, F., has the body short; it is shining black with one narrow band across the middle, and two triangular spots at the sides nearer the thorax. All these are very common.

Volucella pellucens, L., (pl. 17) is a member of another genus in this family. The thorax and body are black, the latter having a broad semi-transparent band across. The wings have a dark shade near the centre, and the base is tinted with yellow. This fly is common in Sherwood Forest and other places, hovering in the air along the drives.

Eristalis tenax, L., is as large as a hive bee, and may be found at ragwort or about drain traps, and is known as the "sewer bee." *E. arbustorum*, L., (pl. 17) may be met with freely at ragwort. The female has the body black, with several very narrow yellow bands. The male is very different, having



Elyrophus tricesii, nat. size.



Wing of *S. arcuatus*, mag.



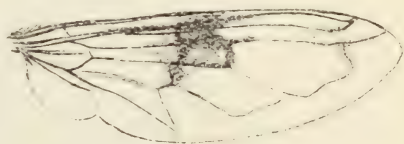
Eristalis arbustorum, n.s.



Wing of *E. arbustorum*, mag.



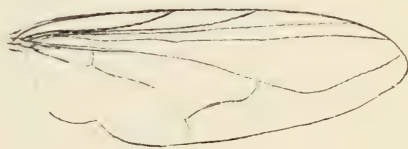
Volucella pellucens, n.s.



Wing of *V. pellucens*, mag.



Mesembrina mesidiana, n.s.



Wing of *M. mesidiana*, mag.



Dryomyza flaveola, n.s.



Wing of *D. flaveola*, mag.

DIPTERA.



a large yellow patch on each side of the body.

Helophilus pendulus, L., is a beautiful insect. The thorax has four longitudinal yellow lines, and the body is black and yellow. A figure of it is given on plate 1, vol. i. *H. florens*, L., is larger, and is without the yellow lines on the thorax.

All these, as well as many other, and also several smaller genera, will be sure to reward the collector without much trouble or search.

NATURAL HISTORY DIARY:

By J. W. CARTER.

July 1st. My brother and I had a night at sugaring; insects swarmed. The only species not previously met with this year were *A. exclamatoris*, *N. augur*, and *R. tenebrosa* (E.P.P.B.) (The latter species is an addition to the Lepidopterous fauna of the of the district. J.W.C.)

July 2nd. *P. carbonarella* very common. (E.P.P.B.)

July 3rd. Took one *A. betularia*, the only one I have taken since 1879, in which year it was common; the black var. then predominated. The one I took on the above date was the "peppered form." (E.P.P.B.)

July 4th. Took one *A. scutellata*; *A. in. canaria* plentiful; also one *P. comitata*; *C. populata*, *M. arcuosa* very plentiful; and *H. proboscidalis*. (E.P.P.B.)

July 5th. Took *M. typica*, and my brother saw *P. cardui*. (E.P.P.B.)

July 9th. Took *B. repandata* and *M. margaritata*. (E.P.P.B.)

July 10th. Black Knapweed (*Centaurea nigra*) in flower.

July 12th. *P. gamma* and *Iota* out. (E.P.P.B.)

July 14th. *L. didymata* and *N. mundana* out, the latter abundant at Goit Stock, resting on old walls. (E.P.P.B.)

July 15th. *C. fulvata*, *Y. clutata*, and *N. brunnea*. (E.P.P.B.)

July 16th. Had a night at sugaring in Bingley Wood, with Mr. Butterfield; took *N. baja*, *M. strigilis*, and *O. suspecta*, &c. *A. aversata* was just coming out. In point of numbers *S. pronuba* predominated. Mr. Butterfield has since taken *O. suspecta* very abundant at Ragwort flowers. Mr. Butterfield pointed out to us a small patch of *Erica tetralix* (Cross-leaved Heath), bearing perfectly white flowers, which recurred annually.

July 19th. Took *P. v-aureum* flying over Wound-wort (*Stachys sylvatica*), at Goit Stock. (E.P.P.B.)

July 21st. My brother found a specimen of *S. bembeciformis* in his bedroom. Took *P. chrysis*, commonly at Cottingly, flying over Woundwort. (E.P.P.B.) Giant Bell-flower (*Campanula latifolia*) fairly in flower.

July 23rd. Took six *sambucata*, *M. rubiginata* plentifully; also six *suspecta* off Ragwort. I again saw the Greater Spotted Woodpecker at Black-hills, and was much struck with a habit it has of frequently settling on the ground. I have good reason to believe it has bred in Bingley Wood this year, as it certainly did last year. The tree in which it bred last year has since been blown down. I had the pleasure of taking a specimen of *V. cambricaria*, resting on the trunk of a small oak at Shipley Glen, which is a new locality for the species. Took one or two specimens of *Chrysomela polita*, from Wild-mint (*Mentha*).

July 24th. Took about eighty specimens of *B. perla* on an old wall near Bingley, amongst them were some beautiful varieties, one which I have has the ground colour yellow and buff. (J.F. and J.W.C.)

July 27th. My brother took one specimen of *L. olivata*, in a cave under the ruins (Bingley). It is very local, we have taken it nowhere else yet, except in this particular cave. I took *L. impura* and *A. oculatea* off the flowers of Ragwort. (E.P.P.B.)

July 30th. Took *P. chi* and *L. olivata* at Shipley Glen.

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CONDUCTED BY

J. E. ROBSON AND S. L. MOSLEY.

No. 94.

AUGUST 27TH, 1881.

With Two Plates.

Part XXI., SEPTEMBER, contains:—How to begin to form a collection of Lepidoptera, 277. Correspondence, 278, 287, 295. Exchange, 279, 287, 295. Notes, Captures, &c., 279, 287. Contributions towards the fauna of Plymouth, 280, 288. British Butterflies, 280, 288, 295. An Entomological Ramble, 282. Land and Fresh Water Shells, 284. Wings of Butterflies, 290. Collectors and Collectors, No. 1, 293. Notes on Common Diptera, 298. Natural History Diary, July 299.

NOTES, CAPTURES, &c.

LARVÆ OF S. OCELLATUS.—After more than twenty years collecting, I have this year made the acquaintance of this larva for the first time: By book descriptions there seemed very little difference between it and that of *populi*, except that the horn of *ocellatus* was said to be blue. Even the figures I have met with show no striking difference between the two except in colour. Miss Hinchliffe, of Inston, has sent me a supply of *ocellatus* larvæ, and I confess I am surprised after believing them to be so like each other, to find so much difference.

Populi is a bright green colour, with greenish yellow diagonal stripes, and a yellow horn. *Ocellatus* is a whitish blue, with similar stripes of a paler whitish blue, and with a longitudinal stripe extending from the first of the diagonal ones to the head. Of this there is no trace in *populi*. There is a variety of *populi* larvæ very much resembling *ocellatus* in colour, but this stripe is a distinct and easily noticed difference. Besides this, the face differs, that of *ocellatus* being larger and flatter, and pointed at the top, and with an orange or orange yellow marginal ridge, which terminates in two little orange-coloured points,

standing above the crown of the head. These differences—the side stripe, and the two little tips projecting above the top of the angular face—are enough to guide any one. There are other more minute differences which I may describe on another occasion, but I thought it worth while to point out these guides to their discrimination now, when both larvæ are feeding. In this part of the country *ocellatus* is exceedingly rare, having seldom been taken, and so far as I know only once bred, when the difference had never been noticed in the larva.—JOHN E. ROBSON, West Hartlepool.

M. STELLATARUM.—I took a female of the humming bird hawk moth flying on the railway side on Saturday last. It is a female much worn, and seems to have deposited all its eggs. I understand it is many years since it was taken here before.—J. J. CAMBRIDGE, Hartlepool.

EXCHANGE

DUPLICATES.—Full-grown larvæ of *Bucephala*.

DESIDERATA.—Very numerous. *Lunaria* and *Illustraria*, spring brood. *Rhomboidaria* *Cinctaria*, *Crepuscularia*, *Betularia*, *Hirtaria*, etc., and many other *Geometra* and *Noctua*, larvæ or imagoes,—MISS HINCHLIFF, Worlington House, Instow, N. Devon.

DUPLICATES. — *Paphia*, *Salicis*, *Jacobeæ*, *Potatoria*, *Devasa*, *Batis*, *L. comma*, *Putris*, *Hepatica*, *Brunnea*, *Ambrosa*, &c. DESIDERATA —Numerous. J. LASSIMAN, 1 Court, 5 House, Abbott's Lane, Coventry.

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No. 95.

SEPTEMBER 3RD, 1881.

VOL. 2.

FIELD CLUBS.

HAVING been asked and consented to become President of a Young Naturalists' Field Club, which appears likely to be of some assistance to its members, we have thought it worth while to make some suggestions on the subject, with a view to the further development of such societies. Young Naturalists, undoubtedly, have great difficulties in their way, and many a youth, who might have made a valued addition to our ranks, is checked and deterred at the outset, and his taste develops in another direction. We have reason to believe our suggestions respecting Local Societies were instrumental in causing more than one to be formed, but a Field Club can be got up with less difficulty than a Society—it is less formal and perhaps more enjoyable. Besides, a well conducted Field Club may assist beginners far more than the mere naming of specimens or verbal instructions that can be given at a Society meeting or an "At Home." Nor this only, but beginners often do and discover, extraordinary things. The good luck of novices is almost proverbial, and it is because they do not make discoveries in a scientific manner that they

are called "lucky." But the fact is that "old hands" get into a groove, and work there contentedly. Beginners have all to find out, and not knowing that a certain species is to be met with in a certain lane, they don't go there, but go elsewhere, and turn up something new to the district, or even to the country. But beginners may readily enough take something new, or discover some unknown fact, and just because they are beginners, and do not know what they have done, the discovery may be lost to the world.

The Field Club, over which we have agreed to preside, is composed and managed entirely by "Young Naturalists," and our duties are not very onerous. We are expected to preside occasionally over their meetings; go with them now and again on an excursion; name their specimens, and give them any help they may need. But their rules are of the simplest kind. There should be no difficulty in such a society being formed where there are half-a-dozen "Young Naturalists." May we insert here a few suggestions. The first necessity, of course, is a few members. To begin with, not many are needed—half-a-dozen would make a

good start, a dozen would be abundance, and even three or four would have a fair chance of success. These can be easily obtained from among your companions, schoolfellows, and workmates. Next you want a President, and naturalists are generally so ready to help beginners that there will be no difficulty here. Select some one you know to be a practical working naturalist, and ask him to accept the post. Tell him you will not make very much demand upon his time, and if he sees you are in earnest he is sure to consent to what you ask. If he have children of his own, he is the more likely to help you, and perhaps you will get such of them for members as may be of suitable age. A naturalist parent generally has sons and daughters of kindred tastes.

Next the conditions of membership. Should there be a subscription? We think not. Have an entrance fee, if you like, but it should either be small, or paid by small sums. No hindrance should be thrown in the way of young people joining by making it too costly. When you are fairly established you might invite some of your leading naturalists, clergymen, interested in the welfare of the young, and others, to become patrons of your club, or they might be called honorary members. Perhaps your local M.P. would aid you with a small subscription. These people are asked freely—almost too much so—to patronize and subscribe to Cricket Clubs, Football Clubs, Boat-
ing Clubs, and the like, and a society

like that we name is surely more deserving of aid than these.

The object of each club should be to organize and promote excursions to investigate the Natural History of the immediate neighbourhood, and gradually to extend the knowledge of its members. In this matter the services of President would be of great value, and though he could not be expected to go with the club on every excursion, he would aid greatly in recommending suitable places.

If the members found they could afford to pay a small subscription, they might once a year or so, draw on this fund to defray the expenses of an excursion to some more distant place. Money received from Patrons or Honorary Members should be spent in books. Works on Natural History, from their limited circulation are necessarily expensive, and it is better to have a few good and useful books, than a shelf full of what are sometimes called Popular Natural Histories, and which are often worthless compilations and copies from other equally worthless books. When further progress is made, cabinets might be obtained and the foundation laid for a Local Museum, which is a most valuable institution.

A place of meeting would be required, and this might be at each others houses. Sometimes perhaps the President would allow the club to meet at his house, when some of his collections could be seen, or use made of his library. If the club be established in

connection with a school, arrangements could perhaps be made for holding the meetings in one of the class-rooms. Even if it is not in connection with a school, an arrangement like this might be made sometimes with great advantage.

We hear some saying, it is too late this year to begin anything of the kind; we will see next spring. It is never too late. Begin now, and you will have all in order for spring. There are plenty of things to collect now. Insects can be had all the year round, even in the perfect state; pupæ can always be found. Winter is the best time for collecting mosses, autumn the best time for shells.

We shall be pleased to hear from anyone on the subject, and will shortly offer a few suggested rules, a design for a members' card, and other little matters that may seem to require attention.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

NOTES, CAPTURES, &c.

LARVÆ OF S. OCELLATUS.—After more than twenty years collecting, I have this year made the acquaintance of this larva for the first time. By book descriptions there seemed very little difference between it and that of *populi*, except that the horn of *ocellatus* was said to be blue. Even the figures I have met with show no striking difference between the two except in colour. Miss Hinchliffe, of Instow, has sent me a supply of *ocellatus* larvæ, and I confess I am surprised after believing them to be so like

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LARVÆ ON POPLAR.—I have found larvæ unusually abundant on various species of Poplar this season. On some little trees scarcely four feet high in and near my own garden I have got *S. populi*, *N. Ziczac*, and *C. bifida* in some numbers. On one little tree I got 13 *Populi*, 1 *Bifida*, and 4 *Ziczac*. In another place I got 15 *Bifida* off one tree. Other collectors have had even greater

success. The Gateshead collectors also report in similar strain.—JOHN E. ROBSON, West Hartlepool.

LARVA OF SATURNIA CARPINI.—I have recently had some larvæ of this species sent to name, which are much greener than any I have before seen of the same species. The green greatly predominates over the black, in fact the latter colour is confined to a narrow ring round each tubicule. Some of the specimens sent had pink tubercules, while others had them yellow, and my correspondent asks if this difference of colour is due to sex. I am not aware that it is. When the young larvæ issue from the egg they are quite black, and are then very inconspicuous among the almost leafless ling. After their second moult they are green and black, and these are equally difficult to see among the young shoots of their food plant. Finally, just as the ling is showing pink flower-buds, the tubercules of the larvæ assume the same colour. This is a wonderful adaptation to conceal the larvæ from birds of prey. The green larvæ were collected in Cheshire. I have also recently had some larvæ of this species, one of which remained completely black up to the time of its going into pupa.—S.L.M.

CAPTURES ON THE CROSBY SANDHILLS.—Saturday, August 27th. By beating the willows, larvæ of *Sphinxæ populi*, were obtained somewhat plentifully; *Dicranura vinula*, *Notodonta dictæa*, and *N. Ziczac*, were also taken. A large field of ragwort was chosen for nocturnal work, and a row of trees were likewise treacled. On the latter I did not capture a single specimen, but the former amply made up for that deficiency. *Agrotis vallisera* and *A. tritici* were not uncommon. Last year *A. vallisera* swarmed both day and night on the ragwort, but the present season is remarkable for the comparative scarcity of that species. *A. cursoria* were apparently scarce, but

from the similarity of some varieties of this species to *A. tritici*, they may have been overlooked. A fine pair of *Luperina cespitis*, *L. testacea*, *Hydræcia nictitans*, *Xylophasia polyodon*, *Triphæna pronuba*, and *Noctua Xanthographa* were also taken.

Last spring I bred a fine variety of the female of *B. quercus*, which has the basal half of the upper and underwings of a dark chocolate brown, bounded by a median line of a darker shade. Beyond the outer margin of this line lies a broad band of dark olive green, which gradually merges into the ground colour. Spot in upper wing almost pure white. The larva of this specimen was taken during the spring of 1880, and remained in the pupa state throughout the summer, autumn, and winter of the same year.—C. H. H. WALKER, Liverpool.

CONTRIBUTIONS TOWARDS THE FAUNA OF PLYMOUTH.

BY MR. G. C. BIGNELL, M.E.S.

(Reprinted by permission of the author from the Transactions of the Plymouth Institution and Devon and Cornwall Natural History Society, 1881.)

HYMENOPTERA, ICHNEUMONIDÆ.

Arranged according to the Rev. T. A. Marshall's Catalogue, published by the Entomological Society of London, 1872.

PART I.

(Continued from page 288.)

EURYLABUS.—

dirus.

PHÆOGENES.—

melanogonus.

ischiomelinus.

candidatus, bred from *Tortrix viridana*.

trepidus. This is a new British species, and captured by myself at Widewell Farm, 4th August, 1880.

PHYGADENON.—

fumator. Plymbridge, 24th April, 1880.

vagans. Plymbridge, 5th May, 1880.

(To be continued.)

BRITISH BIRDS, THEIR NESTS AND EGGS.

By S. L. MOSLEY.

Genus VIII., *Accipiter*.

ACCIPITER (L), from *Accipio*, to take.

This genus, of which we have only one species, is characterized by the shortness of the bill, the short rounded wings, long tail, and long slender legs and claws.

12. SPARROWHAWK.

Accipiter nisus (Linn.)

Sparl hok (Sweden.)

L'epervier (France.)

Falco palumbino (Italy.)

Die Sparber (Germany.)

Pilan, Gwepia (Anct. Brit.)

NISUS (L) flight. Applied to the Sparrowhawk, perhaps, because of its rapid flight.

Size.—Male, length about 1ft., expanse 1ft. 6in. Female, length 1ft. 2in. to 1ft. 4in., expanse 2ft. 4in.

Plumage.—The adult male has the bill dark horn-colour, cere and legs yellow, the whole of the upper parts slaty-blue; under parts yellowish-white, shaded and barred with sienna red. Eyes yellow.

THE FEMALE, which is much larger than the male, has the upper parts dark ashy-brown, the tail with four darker bars; under parts white, the throat streaked and the belly barred with ashy-brown.

IMMATURE males resemble the female in colour.

THE YOUNG are at first covered with white down.

VARIETIES of this species occur, perhaps more frequently, than of any other bird of prey. A case in the Leeds Philosophical Museum contains thirty-three varieties. I have seen specimens entirely drab, and Mr. Bond tells me of one in London pure white, with the margins of the larger scapular feathers and the flanks, tinged with light clear rusty-red. Morris records one, a male,

"the whole plumage being as white as snow." Mr. Hancock figures a male in his "Birds of Northumberland and Durham," being destitute of the red bands on the breast and belly, the whole under parts being white, tinged with rufous.

Note.—During the breeding season, the old birds are said to make a noise exactly like a young cat.

Flight.—The flight of the Sparrowhawk is quick and steady; gliding along steadily, but rapidly, along the side of some fence, then suddenly darting over and seizing some unwary yellow-hammer, or other small bird which the hawk had "spotted out" as its victim. When flying in the open air its movements and general appearance is much like that of the cuckoo.

Migration.—I am not aware that the Sparrowhawk is migratory in this country.

Food.—In this species there are some grounds for the game-keeper's persecution, but "*Honi soit qui mal y pense*," and do not slaughter all hawks because the voracious Sparrowhawk happens to be one of that tribe. It preys upon all kinds of small birds, and will doubtless also take the young of the larger game. It is very bold, indeed we might almost say reckless, in pursuit of its prey. Not unfrequently has it been known to chase small birds through open windows. It has sometimes dashed through a window at a cage-bird that has been hung before it. When a luckless bird finds itself pursued by a Sparrowhawk, it is generally so terrified that it will seek refuge in all kinds of places; it is recorded of a swallow on such an occasion, having flown into the breast of a lady.

IN CONFINEMENT, although naturally a fierce and voracious bird, the Sparrowhawk is capable of being tamed, and even trained to fly at small birds. One is recorded as having been known to live in a dovecote, on

the most sociable terms with the pigeons; but this is doubtful, as the Kestrel is known by the name of Sparrowhawk by some country people. But to tame them properly they should be taken from the nest while young, and the males and females should be kept separate, otherwise the latter, being superior in size, will fall upon and devour the former, if left too long without food.

Habitat.—This is still one of our commonest birds of prey, being of frequent occurrence in almost all the wooded districts of Britain, and not rare in the cultivated parts.

ABROAD it is common all over Europe, except perhaps the extreme north. It extends across Asia, to Japan and China, and to most parts of India. Also in Western Asia to Arabia and Eastern Africa. It breeds in Algeria and in the Canaries, and is found occasionally in Malta and Madeira.

Nest—Generally that of a crow or magpie is adopted, but sometimes, probably when these are not forthcoming in suitable localities, the Sparrowhawk builds one for itself, loosely composed of sticks. Sometimes it is placed in a rock.

Eggs.—From four to six eggs are laid about the first or second week in April. The ground colour is bluish-white, beautifully mottled and blotched with red and brown; generally the blotches are most numerous at the large end, but sometimes they are concentrated round the thickest part, and at other times at the small end. The Egg of the Sparrowhawk is very beautiful and cannot well be mistaken for that of any other species.

VARIETIES sometimes occur entirely without spots, and at other times with the spots indicated by faint shades, like Fig. 2.

Figs 1 and 2 are from specimens in my own collection. Figs. 3 and 4 are from drawings kindly furnished me by Mrs. Battersby, of Cromlyn, Ireland, taken from specimens in her collection.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by S. L. MOSLEY.

(Assisted by Contributors to the Y.N.)

CORYDON, Sco., Pl. 22, Fig. 3.
Chalk Hill Blue.

"CORYDON, Sco., *Corydon*, a Roman shepherd. Cf. Virg., Ecl. ii., 56."—A.L.

Imago.—Pl. 22, Fig. 3. Male, *pale silvery blue, with a SMOKY BLACK HIND MARGIN* and white fringe, through which the wing rays form dark lines. Near the anal angle of the hind wing, the dark hind margin is broken up into three or four spots. Female, brown, with a row of orange lunules round the hind margin, most distinct in the hind wing, *which has also a narrow less distinct black central spot*. Underside brown, with distinct black spots in white rings. In the female a row of these round the hind margin, have an orange lunule to each, on the side nearest the base, forming a wavy orange line. On the fore wing there are *two of these eyed spots between the base and the central spot*.

Larva.—Light green. On the back the eight middle segments have raised ribs or humps on each side, making the dorsal area appear depressed. These raised portions each bear an oblique yellow streak. The projecting sides are also yellow, spiracles black, head dark brown. The larvæ of this species and of *Adonis* are almost indistinguishable. Mr. Hellins (Ent. Mo. Mag., vol. xi., p. 115) states that the only difference he could see was that "*Adonis* has its ground colour *deeper green*, with the hairs or bristles *black*, while *Corydon* has the ground colour of a lighter, brighter green (a green with more yellow in its composition) and the hairs *light brown*." He also points out that this observation does not agree with the differentiation of Boisduval. Mr. Hellins had but one larva of *Corydon* and some figures taken previously to compare with those of *Adonis*; and it is highly desirable further

opportunities should be afforded some well qualified Entomologist to compare carefully a larger number of the larvæ of both species.

Pupa.—Short and rounded, no projections, pale greenish brown in colour.

Food Plants.—Various papilionaceous plants are named as the food of the larva of this species. Stainton says "on species of Vetch;" Newman names "Bird's foot trefoil (*Lotus corniculatus*), Kidney Vetch (*Anthyllis vulneraria*), and trefoil (*Trifolium*)." Owen Wilson adds to these, "Tufted Horse-shoe Vetch."

Times of Appearance.—I have no personal knowledge of this butterfly, and cannot satisfy myself from a comparison of authorities whether it is single or double brooded. Donovan says "it appears in the winged state the first and second week in July;" Stainton says "VIIe—VIIIe;" Kirby (European Butterflies) "V—VIII;" Newman, "end of May, the whole of June, and the beginning of July;" Owen Wilson, "end of May and July, July and August." The first July here may be a misprint for June, in which case he would agree with Kirby. On the appearance of the larva there is equal uncertainty. It was unknown to Donovan. Stainton says "V—VI." Newman's larvæ pupated about the 13th June, but he does not say when he got them. Kirby says "V—VI." Owen Wilson, "September to May (?) June." In Owen Wilson's table he gives May, July and August for the imago; May, June, and July for the pupa; and from September to June for the larva. The balance of evidence here seems to favour the idea that there is but one brood, the insect emerging at the end of May, or early in June, and continuing to emerge for some time, the larva hybernating small and feeding up in the spring, reaching maturity at various periods.

Habitat.—Though called the Chalk Hill blue, *Corydon* is much more widely

distributed in England than *Adonis*. It is most plentiful in the South, but is not uncommon in some places in Lancashire in the West, though it does not reach Yorkshire on the East coast. It appears to be most abundant where there is chalk, but several localities are given where there is none. It is not named from either Scotland or Ireland. On the Continent it is found generally in the Central and Southern portions of Europe, extending to Spain on the one hand, and to South Russia on the other, but not occurring in Turkey, Greece or Italy, nor does it extend to the more Northern portions of the Continent.

Variation.—Many remarkable aberrations of this species exist. Mr. Wellman has a female taken at Croydon, with a small patch of the male colour on the fore wings, and a larger patch on the hind wings, but I have heard of no hermaphrodite specimens. On the underside, the spots sometimes run into streaks, and Mr. C. A. Briggs has one in which they are almost all wanting. There are a great many named varieties. *Syngrapha*, Kef., is a form of the female which resembles the male, except that there is a brownish band round the the hind margin of all wings orange rings or lunules. It is an alpine form. A specimen is figured in Mosley's Illustrations, from Mr. Steven's collection, as this form, but it does not resemble those from the Swiss Alps in my collection, having a dark hind margin to the forewings only, which is without orange marks. *Appenina*, Z., is a pale form from the Italian mountains. *Hispana*, H.S., from Spain, as the name implies, is also a pale form, with spotted hind margin. *Albicans*, H.S., is still paler and occurs in Andalusia. *Corydonius*, H.S., from the mountains of Asia Minor, is violet blue. *Caucasica*, Ld., from Armenia, is sky blue. Other forms are named, but I know nothing of them, viz.:—*Liphys*, Esp., *Calathys*, Germ., *Aragonensis*, Gerh., *Cinnus et Parisiensis*, Gerh.

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The YOUNG NATURALIST :

A Penny Weekly Magazine of Natural History.

No. 96.

SEPTEMBER 10TH, 1881.

VOL. 2.

THE WEATHER.

WHEN General Stanley's younger daughters did not want to appear to be listening to the love passages between their elder sister Mabel and her lover, they said, "let's talk about the weather," and really the weather is the subject of everyone's conversation at present.

"Lawk what weather," said a visitor at the city of Aberdeen to a native sitting under a rock partaking of his hot coffee, "does it always rain here?" "Na, na," replied the Aberdonian, "it snaws whiles!" And with very brief exceptions that has been the state of the weather for a considerable period.

After a very open winter, severe weather set in about Christmas and continued almost until May. Then we had a summer, at times of almost tropical heat, that brought on vegetation with such wonderful rapidity, that had fine weather continued the harvest would have been the best we have had for some time. But Saint Swithin brought rain, and when the forty days were over, instead of the sky clearing and the sun shining out again, heavier rains set in than even the watery saint had brought upon us. Rivers are swollen; much

fair land lies under water, or is so sodden with rain as to be more of a bog than anything else. Crops are rotting in the fields, and farmers are in despair, and still the rains continue.

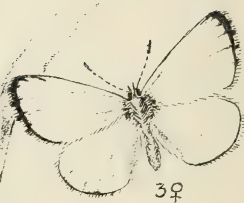
But it is not with regard to its effect on the crops and the farmers that we would "talk about the weather." We wish more particularly to ask what are its effects on animal life in general, and more particularly, what are its effects on insect life. Insects, from their small size, would seem to be particularly liable to suffer from an inclement season. From the love of so many of them for sunshine when in the perfect state, a dull rainy season seems likely to be very disastrous to them. Opinions differ as to the effect of a severe winter. Some think that hard frost, and especially much snow, will serve to protect young larvæ from insectivorous birds and other enemies. Some argue that the severity of the weather itself is likely to destroy as many of these hybernating species as would be destroyed in a milder season by their natural enemies. Unfortunately, our records are so imperfect that we know little or nothing about it. Some of our correspondents write us that the present has been a very bad season,

others think it has been an exceedingly good one. The same difference of opinion prevailed earlier in the year as to what the season was going to be. These are but opinions, and if we gave our own it would be worth no more. What is wanted is the grounds on which these opinions are formed. There is no subject to which we have reverted so persistently as the importance of working naturalists recording in a paper like this the various matters that come under their notice during their collecting expeditions. Records of captures have degenerated in most of cases into records of rarities; and though these are important enough in their way, we are decidedly of opinion that much more could be learnt from a persistent record of the captures of common things. Among the very few general observations we can find in our own pages, or those of other Entomological publications, is one respecting the abundance of the common yellow underwing (*Triphæna pronuba*). Now no one wants specimens of this abundant insect, but it would be interesting to know why it has been so unusually plentiful during the present year. There must have been a reason, meteorological or otherwise, for its appearance in such unusual numbers. One of our correspondents who delights to find fault, had a complaint the other day that we inserted a long paragraph on the capture of a quantity of white butterflies. He thinks such a record is not worth printing, and complains that more valuable matter was necessarily excluded. But what is more valuable

matter? It may be more interesting to one whose collection does not boast of a specimen of some particularly rare insect, to learn that several have been taken, and that there is a chance for him obtaining one at last. But which fact is most important. Why is it that white butterflies have been unusually abundant this year? Can anyone answer the question? Last year, where the writer resides, they were very seldom seen. Day after day he never met with one in his walk from home to business, while this year he could count them by hundreds in passing over the same ground. A year or two ago it was *Cardui* and *Plusia gamma* that attracted attention. A little earlier everyone was taking *Colias edusa*. We may be mistaken, but we are of opinion that until we return to the habit of making larger records of our captures, we will never be able to arrive at generalizations on these subjects, or to give reason for their occurrence. The writer found *Xylophasia rurea* unusually abundant this season, and judging by the number of specimens that have been offered in our paper and elsewhere for exchange, he is of opinion that it has been unusually abundant in many places, perhaps all over. Why?

Perhaps we are repeating ourselves on this subject until our readers are weary of it, but we think it an important one. We are addressing Young Naturalists more particularly. We want to induce them to make notes as they go along, and to have them printed whenever possible. Some of the pro-





P. Acis	1
" Aisus	2
" Argiolus	3
" Arion	4

blems to be solved may be rather beyond the conception of beginners, but let them think about them more and they will see their importance in due time. And even now, they may help to their elucidation by making notes of everything. Anything abnormal is always recorded very carefully, but we learn far more of the operations of the laws of Nature by the record of ordinary, not extraordinary occurrences. Meteorologists record, for instance, the direction and force of the wind, the rain-fall and various particulars concerning it; but "the rain it raineth every day" and they still go on recording all about it every day. Then in the course of time they are able to generalize and draw conclusions, and when these notes and others are all collated and studied, they begin to have an idea of what kind of weather is to come, from knowledge derived from past experience. Why cannot Naturalists do the same? "Nothing is difficult," says Dr. Sampson, "to a man who knows the reason of everything;" and when we know all about it we will be able to prophecy that next year will be a great *Edusa* year, or a great *Convolvuli* year, or to go back and say *Gamma* or *Cardui* have been abundant this year, from certain causes last year which we proceed to point out. In the meantime, and till this can be done, keep diaries, put down everything; and do not be afraid of sending your observations to print because they seem trivial.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY Beaumont Park, Huddersfield.

WE have to thank Mr. T. W. King, of Camberwell, for some dipterous parasites, from cocoons of *O. potatoaria*. They prove to be *Exorista vulgaris*, which has already been bred from several other Lepidopterous insects.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by S. L. MOSLEY.

(Assisted by Contributors to the Y.N.)

ACIS, W.V., Pl. 24, Fig. 1.
The Mazzerine Blue.

"ACIS, W.V., *Acis*, well known in connexion with Galatea. Cf. Ovid, Met. xiii., 750."—A.L.

Imago.—Pl. 24, Fig. 1. Male, dull, dark blue, with a very narrow brown margin. Underside of forewing, *Disc spot, and a curved row of from five to seven black spots, in white rings, between it and the hind margin*; the hind wing has also one similar spot on the costa, near the base. The female is dark brown on the upperside, but similarly spotted to the male. *There are no spots at all on the hind margin, nor nearer the base than the central spot.*

Larva.—I know of no description of either the larva or pupa of this species, nor have I the slightest personal acquaintance with them.

Times of Appearance.—The insect appears on the wing at the end of June or in July. I can learn nothing of its appearance in the earlier stages. It appears only to have one brood in the year.

Habitat.—In England, this species has occurred in but few localities, and its rarity has induced collectors, more particularly dealers, to take all they could find, hence it has been exterminated, or nearly so. It has been recorded as being taken in the follow-

ing English counties — Cambridgeshire, Dorsetshire, Gloucestershire, Hampshire, Herefordshire, Lincolnshire, Somersetshire, and Warwickshire. In Wales, Glamorgan-shire and Monmouthshire. On the Continent it is very widely distributed, and extends into Northern and Western Asia.

Variation.—I do not know of any British or abnormal varieties, but there are five named forms, principally from the mountainous districts of Greece and Eastern Asia. They are *Bellis*, Frr., which is larger than the type, and has red spots on the underside. It occurs in parts of Asia Minor and towards Persia. *Parnassia*, Stgr., which is like the last but smaller. It is found on Mount Parnassus, and other Greek mountains. *Helena*, Stgr., also from the Greek mountains, has a marginal reddish band on the underside. *Antiochena*, Ld., is a form of the female, with a reddish band on the upperside of all the wings. It occurs on the mountains in the western parts of Asia Minor. *Osiris*, Meig., of which I neither know the peculiarities nor locality.

Note.—This species is now called *Semiargus*, Rott., by most writers, this name dating from 1775, while *Acis* was not used till the following year. The name *Semiargus* might therefore be adopted by us

ALSUS, W.V., Pl. 24 Fig. 2

The Little Blue.

"ALSUS, W.V., *Al'sus* a Rutulian shepherd. Cf. Virg. *Æn.* xii. 304."—A.L.

Imago.—Pl. 24, Fig. 2. Dull brown, with a faint silvery blue tinge. The scales giving this blue tinge appear to be but loosely attached, and it disappears after the insect has been on the wing a few days. Underside, dull silvery grey, with rather ELONGATED BLACK SPOTS IN VERY NARROW PALE RINGS. *There are no spots on the fore wing between the central spot and the base, nor are there any marginal orange spots on either side. This is the smallest British butterfly.*

Larva.—Green, with the dorsal furrow orange coloured, an oblique orange line on each segment, and the side projections orange or yellow. Head black.

Pupa.—Rather stumpy, brownish yellow, with three rows of black spots.

Food Plant.—Stainton says "*Astragalus*," and Kirby says "*Astragalus cicer*," but I think there is little doubt but the Kidney Vetch (*Anthyllis vulneraria*) is the true food of this species. In the Entomologist's Monthly Magazine, vol. iii., p. 205, an interesting account is given of the oviposition of this species, by Mr. T. Gedge, of Cambridge, and the plant selected was always the Kidney Vetch. They were observed to settle sometimes on the Horse-shoe Vetch (*Hippocrepis comosa*), but no egg was deposited on that plant. Where I have taken the insect the Kidney Vetch has always been abundant.

Habitat.—This little butterfly frequents waste places, sand hills, railway banks, &c. It is rather local though occurring all over England, and being abundant in many places both in Ireland and Scotland. It is generally distributed over Europe except in the extreme north, and occurs also in Siberia and Asia Minor.

Variation.—I have not heard of a variety of this species. Bred specimens are often much suffused with pale silvery blue scales, much the colour of *Corydon*. Two varieties are named, *Lorquiniæ*, H.S., which is sky blue on the upper side, and *Alsoides*, Gerh., of which I know nothing.

ARGIOLUS, Linn. Pl. 24, Fig. 3.

The Holly Blue.

"ARGIOLUS, L., *Argiolus*, diminutive of *Argos*."—A.L.

Imago.—Pl. 24, Fig. 3. Male pale blue, generally with the tip margined with black; fringe white, with a dark line at the veins. Underside, pale silvery blue, a short STREAK

near the centre, and a row of short STREAKS without white outlines near the hind margin. The female is like the male except it has a *broad black hind margin* to the fore wings, and a narrow one to the hind wings.

Larva.—Green, with a darker dorsal line, sometimes reddish or crimson; head and legs black.

Pupa.—Short and blunt, smooth, green with brown markings, and a darker dorsal line.

Food Plants — Flowers of Holly (*Ilex aquifolium*), Ivy (*Hedera helix*), and Buckthorn (*Rhamnus frangula*). Blackberry, Wilson.

Times of Appearance.—This is another very common butterfly about which there are considerable doubts, or perhaps I should say, want of certainty, as but few records of its capture in the larval state are in existence. The butterfly appears in April or May, and as the Holly and Buckthorn flower in May, there is little doubt the larvæ of the first brood feed on these plants. It is full fed in June, and the Imago of the second brood is on the wing early in August. The eggs are deposited in August and September, and the Ivy, which flowers late in the year, is considered to be the natural food of the second brood of larvæ. A difficulty, however, has been pointed out with respect to this apparent migration from one plant to another, that the butterfly occurs in many places where but one of these plants grow. Mr. Owen Wilson has perhaps partly solved the problem, for he calls attention to the fact that one of his correspondents (Mrs. Boley) caught a butterfly on the 26th of August. "It refused to lay on holly or ivy; but as she caught it on the blackberry blossoms, she gave it a spray on the 30th August, and it at once commenced laying; it continued to do so until the 4th September, and laid altogether twenty-six eggs." As blackberry or bramble is abundant everywhere, and flowers at the right time of year

for the second brood, this may explain part of the apparent difficulty. The question now arises, does the butterfly occur anywhere where neither Holly nor Buckthorn are found. Of this I have no knowledge, and can find no records, but call the attention of the readers of the *Young Naturalist* to the matter, hoping to have it solved next spring. It would be also well to have Mrs. Boley's discovery confirmed by other observers, that it may be found not to be a merely accidental occurrence.

Habitat.—Generally distributed in the South of England, not uncommon in the North, and apparently absent from Scotland. It occurs all over Ireland. It is found throughout Europe, and extends into several parts of Asia, bordering thereon, but does not appear to have any wider range.

Variation.—*Argiolus* varies but little. The black border of the female is sometimes wider, sometimes narrower, and a male specimen in the collection of Mr. C. A. Briggs, has both wings broadly margined with black, very much more so than is usual even in the females. A specimen in my own collection is a very pale shade of blue. Only one variety is named, *Hypoleuca*, Koll., a form without the spots or streaks on the underside. It occurs in Persia and the Island of Cyprus.

THE HAREBELL

(*Campanula rotundifolia*.)

By J. P. SOUTTER, Bishop Auckland.

ALTHOUGH in Britain we have eight or nine species of the genus *Campanula* or bell-flowers, either indigenous or naturalized, all of which are easily recognised from their showy and attractive flowers. Yet only two of them can be said to be well-known, these are, the giant bell-flower (*Campanula latifolia*) which is common throughout Scotland and the North of England, in wooded glens and

shady river banks, where its tall, leafy, erect stem with its pendent rows of large pale liliac or white bell-like flowers, form a fitting peer or rival to the stately foxglove—the *grande dame* of British wildflowers. But the best known and best beloved is the singularly graceful and charming little harebell, emblem of constancy and sweet retirement. It is all but universal in its distribution, for it may be found braving the blast on every exposed moor; clinging to the crevices of precipitous cliffs; crowning the wall-tops of crumbling ruins; springing from the sand and shingle of the dried up bed of the mountain streamlet; or cheering the traveller by its dancing motion on the dusty wayside bank. No soil is too poor to afford it sustenance, but it is essentially dry-loving, and is very impatient of stagnant water at its roots, hence it is not easy of cultivation, except on well-drained rock-work.

So familiar a plant needs no lengthened description, so I shall simply direct attention to one or two details of structure, liable to be overlooked. Most people will readily admit the appropriateness of the generic name *Campanula*—a little bell—as applied to the handsome showy flowers of this genus, including as it does the well-known garden Canterbury Bells. But the specific name *rotundifolia*—round leaved—does not seem so apt, especially to one who has only noticed the plant whilst in flower, or growing amongst grass, for then the narrow linear stem leaves are the most obvious, and the long-stalked round root leaves are easily overlooked. It is said that Linnæus, who was the first to distinguish plants by two names, had his attention first directed to this humble little plant, by seeing its green rosette of round leaves in spring, peeping forth between the chinks of the paving stones in the courtyard of Upsal University, in Sweden, and that he then happily christened it “the round-leaved bell flower.”

The same diversity betwixt the root and stem leaves may be noticed in many other plants; and it is of importance in gathering plants for the herbarium, to procure both classes of leaves in order to secure a characteristic specimen.

The peculiarly slender and wiry stems are remarkably tough and elastic, they bend readily to the blast and are rarely to be seen broken. The terminal flower expands first, but although its delicate blue colour is so pleasing to the eye, it does not dry well for the herbarium, as the colour soon fades and the blossoms become white. The corolla so beautifully moulded in shape is marcescent, that is it withers without falling off, and its shrivelled remains may be seen adhering to the ripe fruit. By examining a flowerbud just before it expands, the five long anthers may be seen closely investing and overtopping the style, but by the time the corolla has fully opened they will be found to have shed their pollen, and curled up in a curiously spiral manner, and they soon disappear altogether. The style is surrounded by a fringe of hairs, to which the pollen may be seen adhering, giving it a club-shaped appearance. It continues to grow till it is twice its former length, and equal to the fully developed bell of the corolla, when it unrolls its three-lobed stigma and is then only in a receptive state to be fertilised by the pollen grains. It is obvious that the stigma must be largely if not solely dependent for its impregnation upon the pollen produced by the more recently opened flower. Its conveyance is readily accomplished by the visits of bees and moths who are attracted by the showy flowers and by the nectar secreted at the base of the style, and which is curiously concealed by the flattened filaments of the stamens. The drooping bells are much frequented by the lesser insects, to whom its spacious canopy must prove a gorgeous palace admirably fitted to supply their wants,

where they can find conjoined shelter and sustenance.

The ovary is surmounted by the five persistent calyx teeth. It is three celled, and on cutting it open the numerous little seeds will be found sticking on end all over a peculiar prolongation from the centre of each cell. When ripe the capsules open by three clefts at the base, and the seeds are shaken out by the wind.

This charming wilding of the moors has always been a first favourite with the poets. It can even lay claim to giving its name to a popular national air, "The Blue-bells of Scotland," and many Scottish bards have sung its praises. It seems to have been a special favourite with Sir Walter Scott, who happily describes its habitat and period of flowering in the "Lay of the Last Minstrel."

"But still,

When summer smiled on sweet Bowhill,
And July's eve with balmy breath
Waved the blue-bells on Newark heath.

And that it lingers on into late Autumn is aptly noticed by Grahame:—

"As yet the blue-bells linger in the sod
That copes the sheepfold ring; and in the woods
A second flow of May flowers appears,—
Flowers faintly tinged, and breathing no perfume."

Again in "Rokeby," when describing the ruined state of the hall, Scott says:—

"On Barbican and keep of stone,
Stern time the foeman's work had done;
Where banners the invader braved,
The harebell now and wallflower waved."

How characteristic of the little *Campanula*, one of the first plants to take possession of the crevices of neglected ruins, where their spreading rosettes of bright green root-leaves and beautiful flowers of brilliant blue, form one of Nature's fairest curtains to veil the decay of man's handiwork, recalling also pleasing associations of happy childhood, when in gleeful frolic we tipped our fingers with the "witches thimbles." Further on, he sings:

"Let merry England proudly rear
Her blended roses bought so dear;
Let Albin bind her bonnet blue
With heath and harebell dipped in dew."

Again, in the "Lady of the Lake," when describing the charms of the fair Ellen, he says:—

"A foot more light, a step more true,
Ne'er from the heath-flower dashed the dew;
E'en the slight harebell raised its head,
Elastic from her airy tread."

Could there be a more vivid picture of the sprightly grace and springy footstep of an artless Scottish maid, or a more characteristic description of the slender yet wiry stem of the harebell. Again, Ellen herself says when adopting it as her badge:—

"For me,"—she stooped, and looking round,
Plucked a blue harebell from the ground,—
'For me whose memory scarce conveys
An image of more splendid days.
This little flower that loves the lea
May well my simple emblem be.
It drinks heaven's dew as blithe as rose,
That in the king's own garden grows;
And when I place it in my hair,
Allan, a bard, is bound to swear
He ne'er saw coronet so fair."

One other quotation must suffice, for we could fill pages in praise of this pet blossom.

Mid ruins crumbling to decay,
Thy flowers their heavenly hues display,
Still freshly springing,
Where pride and pomp have passed away,
On mossy tomb and turret grey,
Like friendship clinging.

"But most I love thine azure braid,
When softer flowers are all decayed,
And thou appearest
Stealing beneath the hedgerow shade
Like joys that linger as they fade,
Whose last are dearest."

It is only as showy ornamental plants that the Bellflowers are valued, for none of them have acquired commercial importance. One species (*C. rapunculus*) has been cultivated for its roots—used as radishes—and called "ramps," but it has never found much favour in this country. Another species (*C. trachelium*), or throatwort, had at one time a repute in diseases of the throat, but it has now fallen into disuse.

A curious legendary property was once ascribed to the harebell, that it increases the supply of milk in the breasts of nurses, this doubtless arose from the old law of signatures, owing to the milky juice which it and its allies exude when bruised, but this, if it possesses any quality, is astringent in its nature. A blue ink has been made from the harebell, and its roots are said to have been used as food; but if so, it must have been under the pressure of the direst famine, or else eaten by way of experiment.

THE YOUNG NATURALIST.

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The YOUNG NATURALIST :

A Penny Weekly Magazine of Natural History.

No. 97.

SEPTEMBER 17TH, 1881.

VOL. 2.

CASES FOR STUFFED BIRDS.

IN looking over museums and private collections of Stuffed Birds, we have often been struck with the want of system, especially in the make and arrangement of the cases, and this is still more apparent when a number of cases, belonging to different persons, are brought together for the purpose of forming an exhibition. When a bird collector procures a finished case of birds, and finds that it does not arrange with his own, he is often put to great trouble in order to take perhaps half-an-inch from the top of the case, when otherwise the case may be fitted up quite to his liking. How much better does a collection look when the cases are made to certain standard sizes, and one genus of birds arranged in a row side by side.

The Rev. F. O. Morris, in the old "Naturalist," gave a list of British Birds, with the size of case adapted to each species, but we would not go to to that extent, because a person who required the nest say, would want a larger case than if he wanted the birds only. What we would suggest, and the plan we adopt for our own collection, is

this: To have certain heights and certain lengths for the cases; and if these sizes could be adopted by Taxidermists generally, collectors of British Birds would be saved some inconvenience.

The smallest case in our collection is 8in. by 8in. This is just sufficient for a single warbler or other small bird—a rare species of which we happen to have only a single specimen.

The next size is 8in. high and 12in. long. This size we use for all the warblers, tits, and small perching birds, but ground birds such as wagtails, larks, sandpipers, &c., require the case two inches longer.

The next size is 10in. by 10in. which is sufficient for single birds of the Shrike size, while 10in. by 12in. is enough for a pair. Thus raising two inches at a time, both in height and length, and in piling a room full of cases, the advantage of this will soon be seen. For instance, two 8in. cases, put one on the top of the other, will arrange along with cases 16in. high, without making breach or gap.

We would advise our young readers, who are just beginning to form collections of British Birds, never to put two species in the same case, unless you

wish to illustrate say one genus, then put in all the species—all the titmice for instance; but for our own part we would rather see them in small cases, and arranged side by side.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY Beaumont Park, Huddersfield.

P.T.D.—Your query shall be replied to in an article next week.

H.T.R.—Your *Clausilia* is *Rugosa*.

D.A.—Several of the monthly parts can no longer be supplied for want of covers, but all the back numbers are in print, and can be had from our present publishers, or direct from ourselves.

R.T.S.—No, we do not think Stamp collecting a childish pursuit, unless it be followed in a childish manner. We know a little about stamps, and shall be glad to name any sent to us, or reply to queries; but such enquiries must contain a stamped directed envelope for reply. We cannot reply in this column.

EXCHANGE.

DUPLICATES.—Larvæ of *Agrotis ripæ*.

DESIDERATA.—Perfect specimens of other local specimens, especially *Pyrales*.—GERVASE T. MATHEW, Instow, N. Devon.

DUPLICATES.—*H. leucophearia*; *H. Aurantiaria*, *H. progemmaria*, and *H. defoliaria*, with females; *M. rubiginata* and *P. Chi*.

DESIDERATA numerous.—JOHN FIRTH, 88. Woodlands Road, Manningham, Bradford.

NOTES, CAPTURES, &c.

On Saturday last I took eight fine specimens of *P. chi*, at rest on tree trunks; seven of which were the dark variety, *Olivacea*, but not having any boxes I had to carry them home in my hat, which did not improve their condition. It was raining heavily all the time, and has been for some weeks here

more or less.—G. F. MILLER, Gateshead.

WILD SWANS NEAR BIRMINGHAM.—The following is an extract from a Birmingham paper of the 8th inst.:—"On the 1st of September, a farmer shot out of a flock of five a magnificent specimen of that exceedingly rare and valuable bird the Polish Swan (*Cygnus immutabilis*), at Solihull. This species is extremely rare, even as an European species, and one fact in connection with the species is that the young of this bird never change colour or become grey as in all the other species of swan, but are always in the white plumage. The young of the ordinary kinds in their grey plumage, are designated Cygnets: the plumage of this bird is as its name implies *immutable*. The specimen has been passed into the already magnificent collection of Mr. R. W. Chase, of Edgbaston Road."—P. T. DEAKIN, Birmingham.

LATE NESTING.—Mr. Dale tells me he flushed a Partridge from her nest in the middle of August. It was on the railway side, and contained eggs. About the same time Mr. J. J. Cambridge found a Yellow-bunting's nest, with two fresh eggs; next day it had three. These seem unusually late.—JOHN E. ROBSON.

PUPA OF *S. LIGUSTRI*.—I had a larva of the Privet Hawk (*S. ligustri*), that went into the earth to pupate about the middle of August. Is not this early, for "Merrin's Calendar" gives the month for the pupa as October?—A. DAVIS, Great Marlow, Bucks. [Merrin will perhaps mean that all should have pupated by October, but in our copy of his "Calendar" this species is not given under any month as being in pupa, except in the index. They generally commence to go down in August.—Eds. Y.N.]

CAPTURES IN THE ISLE OF WIGHT.—During a short stay in the Isle of Wight, in the early part of August, I took specimens of the following butterflies:—Clouded Yellow (*C. edusa*), Walls (*S. megæra*), Gray-

ling (*S. semele*), High Brown Fritillary (*A. adippe*), Azure Blue and Brown Argus (*P. adonis* and *P. agestis*).—IBID.

EGG COLLECTING.—I do not know whether other collectors have found it the same, but I think during the past season, the nests of the Greenfinch and Red Backed Shrike were by far the commonest "Hedge" nests of the season.—A. DAVIS, Junr., High-street, Great Marlow, Bucks.

SPHINX CONVULVULI AT BIRMINGHAM.—On August 27th, a specimen of Sphinx Convulvuli was caught by a woman in a court, in Suffolk Street, Birmingham; it has since passed into the hands of Mr. Franklin, Naturalist.—GEO. Y. WHEELDON, Birmingham.

VARIETIES OF THE BLACKBIRD.—I have recently added to my collection, three very interesting varieties of the Blackbird. The first is very pale grey, nearly white, and is probably a male. I have seen pure white specimens, and should be glad to hear if any person has one they would exchange for other varieties or rare species. The next is an ordinary black male with the upper parts much mottled with patches of white. The third is a reddish clay colour and is probably a female. I am unable to give the locality where any of them were killed.—S. L. MOSELY, Huddersfield.

FLAMBORO' HEAD.

By S. L. MOSLEY.

It is now many years since I visited this renowned and much frequented stronghold of some of our native sea-birds. For twenty years previous to the passing of the "Sea-birds Preservation Act," my father visited this headland every summer, and his name is still well-known to most of the old boatmen of the place.

How well I remember my first visit with him before I was in my 'teens. The boundless stretch of the mighty ocean; the

stupendous cliffs, in some places over a thousand feet in height, with their innumerable flocks of feathered tenants, were to me objects of the greatest wonder, the like of which I had never dreamed of before. Still fresh upon my memory, too, are the small parties of birds launching out from the cliffs towards the wide expanse of sea, or returning therefrom after a feeding tour with a small glittering fish in their beaks for their newly-hatched young. Then the cry of the young which had gone down to sea still rings familiarly in my ear—"willock, willock, willock." A stroll upon the cliff tops, the discovery of a colony of Burnets, and the quantities of Common Blues, gave me fresh pleasures, the remembrance of which must ever remain. Then when I went down to the beach to go out with a small party of shooters in one of the small crafts locally called "cobbles," O, how anxious! should I be sea-sick? Few people, I was told, went on under these high cliffs without being sick, and the probabilities were that I should experience the same sensation. However, I was not sick, though some of the party were so bad that they said they cared not whether the boat sunk or swum. I was never sick, though since I have been on in the same place when the waves have rolled mountains high, dashing with roaring fury against the sturdy rocks, pitching the little bark about like a chip, the crest of each mighty wave splashing over both boat and men, drenching us and filling the boat bottom with water which had to be baled out every now and then. When I last visited this romantic place, ten or a dozen years later, the place was much the same, though a change had come over me. I was prepared for all I saw: I had read and studied the book of nature, and I sought opportunities to verify facts of which I had read in books. My only companion was her who has been my companion since. The weather was fine, and from that time

I ever think with feelings of pleasure of my visits to Flamboro' Head.

The sea is clear as crystal, the rocks are white chalk or limestone, with lines of flint and gypsum spar. In the highest parts every shelf is tenanted by sea-birds—Guillemots, Razorbills, Puffins and Kittiwakes, with their eggs and young. These four species exist in countless thousands. Rock Doves breed there not uncommonly, and the Rock Pipit may be met with among the stones and shingle at the foot. Now and then a Peregrine or a White-tailed Eagle will pay a visit, creating consternation among the rightful owners of the cliffs.

Now, the Head is quite different: no gunners are permitted to molest the birds during the breeding season, and to some extent this is only right and proper, but I cannot help thinking that some persons carry their zeal too far. I do not approve of cruelty, and would condemn it in *all* cases, but if it comes to a matter of right, one person has as much right to "sport" among guillemots as another has to "sport" among red grouse. If the shooter be a bird stuffer and goes in for earning bread and cheese, he has the same right. The plea that the birds are protected for the sake of the fishermen is but a weak argument for the birds feed upon the very fish the men wish to catch, and I now hear that the fishermen complain that there are no fish; the men have caught the old fish and the birds have eaten the young, so there are none to catch; and when a few years it was a good fishing station, now, a party goes out and returns to their dismay, and to the misery of their wives and families, with the lamentable haul of "three herrings."

NATURAL HISTORY DIARY:

By J. W. CARTER.

August 2nd. Took *C. immanata* and *C. graminis* from flowers of ragwort. House Martins flocking; the main body migrated

long before the average date. The same remark applies to last year. (E.P.P.B.)

August 4th. Took *C. trapezina* at sugar, also *N. umbrosa* at ragwort, *H. sylvinus* on the wing. Saw a splendid specimen of *N. dahlii* at ragwort, but failed to capture it. (E.P.P.B.)

August 5th. *V. urticae* out. (E.P.P.B.)

August 11th. *N. dahlii* fairly out, at ragwort. (E.P.P.B.)

August 12th. *O. suspecta* swarmed at ragwort. We also heard Golden Plovers migrating. (E.P.P.B.)

August 14th. Saw a young Cuckoo on Black Hills; a Titlark was feeding it. The Cuckoo almost invariably lays its eggs in the nest of this species, at least in this locality, and I believe in all the northern counties of England. (E.P.P.B.)

August 20th. Took two or three specimens of *Polia chi*, var. *olivacea*, on old walls near Bingley. This variety is not at all uncommon in this district, though I believe the greater number of the specimens found are taken from walls near or around the high and barren moorland. Took *A. oculatea*, *C. immanata*, *O. suspecta*, and *N. Dahlii* at ragwort flowers, the latter species no uncommonly. We also observed a specimen of *P. rapae* sleeping on flowers of *Scabiosa succisa*. (J.F. and J.W.C.)

August 21st. Visited the ragwort, *N. dahlii* swarmed. I could have filled, without difficulty, a hundred boxes. When I had filled my limited number of boxes, the next best patches of flowers had no less than six *Dahlii* upon them. Some of the varieties were very dark. It was a real *Dahlii* night, as the 12th was a *Suspecta* night. What was the most striking feature was that on the 12th and 21st inst., *Suspecta* and *Dahlii* were nearly the only two species that visited that particular flower. (E.P.P.B.)

August 22nd. *H. nictitans* at ragwort flowers. (J.A.B.)

August 24th. *S. dubitata* out. (E.P.P.B.)

August 28th. Took *C. testata* on Harden Moor. *B. quercus* larvæ in profusion, and full-grown.

August 31st. Saw a large flock of Ring-ouzels on Blackhills, evidently preparing for migration. (E.P.P.B.)

A DAY IN BALDERSDALE.

By J. P. SOUTTER, Bishop Auckland.

Having long had a desire to explore the upper recesses of Teesdale, accompanied by a friend we left Bishop Auckland by an early train one day last week, and after a brisk run by railway, were safely deposited at Cotherstone station, where we were met by two of our fellow-townsmen at present ruralising in this quiet Yorkshire village. The first thing to attract attention is a neat new church, rapidly approaching completion. More fortunate than the inhabitants of certain other places, the denizens of this Tees-side "sleepy hollow" have escaped the anathemas of irate archæologists against barbarous restorations, for, as they never had a church to restore, they have gone in for a brand new edifice, by this innovation showing that they are awakening to the needs of nineteenth century civilisation. After a sumptuous breakfast we strolled round a large and productive garden, noting particularly the gooseberry bushes, literally laden to the earth with their burden of luscious fruit, and showing no trace of the presence of the caterpillar whose ravages have proved so destructive in other districts. We next visit the Friends' Meeting House, which seems the ideal realization of religious seclusion. The building is devoid of the slightest attempt at architectural embellishment, but is relieved from plainness by the rich drapery of ivy which mantles its walls, whilst the neatness and cleanness of its surroundings betoken it the object of loving care. The adjoining grass-grown graveyard, with its formal rows of narrow mounds,

is strewn with the needle-like leaves of the massive larches which environ and overshadow it, giving one the idea of an Indian burial place in the midst of a primeval pine forest, where

That delicate forest flower
With scented breath, and look so like a smile,
Seems, as it issues from the shapeless mould,
An emanation of the indwelling Life,
A visible token of the upholding Love,
That are the soul of this wide universe,

whilst the prim and diminutive headstones, rigidly of an uniform pattern, reminds one of the severe simplicity of this somewhat sombre sect. We have no time to further explore the beauties of Cotherstone, which, charmingly situated at the junction of the Tees and the Balder, is just such a rural retreat as one might choose wherein to live and die, the world forgetting, by the world forgot. We now start for the moor, following the course of the stream. We drive over a fairly good road, pleasantly beguiling the time by rehearsing local legends, such as the origin of the famous christening of calves at Cotherstone, which has given rise to so many rustic attempts at wit. It happened in this wise. Once upon a time a family, rejoicing in the euphonious name of Calve, resided in Cotherstone; as to them young Calves were born, and they must needs be baptised, it was truly said that at Cotherstone they christen Calves. The grass-grown and mouldering ruins of Cotherstone Castle, recalls the untimely fate of its last lord, who whilst hunting was carried away by a frightened steed, and dashed to pieces over the highest precipice on the Tees, the frowning front of which can be seen in the distance. The passing of a haunted hall reminds us of the tragic termination of a practical joke, which happened there in the early years of this century. Amongst the retainers was a half-witted fellow, who was often badgered by his fellow-servants as to his timidity in prospect of seeing the ghost; so one night, to test his courage, one of his youthful comrades procured a bullock's

skin, horns and all complete. Dressed in this horrid costume he waylaid his fatuous friend in order to frighten him. What occurred was never rightly known, but when the poor imbecile got home, and the laughing conspirators asked him if he had seen the ghost, "Yes," said he, "and I have laid him." Alarmed at the non-appearance of the masquerader, search was made, and he was found dead, stabbed to the heart. For the first four miles the vale of the Balder is highly wooded, the banks occasionally steep and rocky, forming romantic dells, diversified with sloping pastures of vivid green. The roadsides are fringed with veritable hedges of giant bell-flower (*Campanula latifolia*) and fragrant meadow sweet (*Spirea ulmaria*), just coming into flower a month later than in our lowland woodlands. The bramble now gives place to the wild raspberry (*Rubus idæus*), with its tempting scarlet fruit. The most conspicuous plant in the pastures is the coarse horseknop (*Centaurea nigra*), with its crimson flowers, and the neat, much branched eyebright (*Euphrasia officinalis*), attractive by its profusion of white-veined blossoms. A sudden sharp descent now lands us at a most picturesque mill, completely hidden by the surrounding trees. The Balder, which here flows over shelving sandstone rocks, is spanned by one of the two bridges which seems the only means of communication betwixt its two banks throughout its entire length. We are promptly met by the brisk, brawny, sharp-featured, loud-voiced miller, who volubly informs us that as the Stockton and Middlesbrough waterworks are speedily to disestablish his mill, by impounding the water, and thus prevent him from making the staff of life, with a keen eye for the mainchance he has secured a license, dubbed his house the Reservoir Hotel, still resolved to make his living by a lawful calling, and now offers entertainment for man and beast. Discussing whether waterproofs and um-

brellas should be left behind with the vehicle, the miller recommends precautions, as it often rains amongst the hills. He points out the site of the projected reservoir, which, when finished, must form an important feature in the landscape. Ascending by a rugged and toilsome track, past picturesque farmhouses, every one guarded by watchful colliers, we pass a straggling aggregation of houses where the inhabitants are slow of speech, sedate in gait, and deliberate in action, yet a wag remarks they are always in a hurry (Hury being the name of the place). We now come on a good road, which runs the whole length of the dale from Romaldkirk to the limits of cultivation. But after the first mile, where we cross a really romantic little dell, with a miniature cascade, the steep banks are fringed with larch, birch, and mountain ash, the berries of which are now gleaming red amongst the feathery foliage. After that the road becomes monotonous in the extreme, stretching away for miles without a tree or turning to break the line, with two bare stone fences on either hand, each surmounted ridge showing another in the distance to be encountered. The vale now opens out considerably; the course of the stream far below can be traced by its fringe of alders and birches. By the scattered grey stone-roofed farmhouse an occasional sycamore or ash may be seen, but the oak and elm soon disappear, and of woods there are none. To while away time whilst we trudge along, speculation is rife as to the causes at work which left the level table tops with precipitous sides of Goldsboro and Schacklesboro crowned with heather, whilst the denuded slopes to the valley's bottom are rounded and green. The top of the ridge is formed of hard sandstone or millstone grit; here and there we see it quarried into lintel stones of portentous size; in the water-worn gullies are seen black crumbling shales, giving delusive hopes of combustible coal; whilst the vivid

green of the meadows and a gaunt spectre-like disused limekiln betoken the presence of the Yoredale limestone. Every inhabitant of the dale—man, woman, and child—are out hay-making, for grass is their only crop and this is their harvest time. We hear the whirr of the reaper, and the swish of the scythe wielded by the sturdy dalesmen, see the deftly-handled rake manipulated by rosy-cheeked damsels, and are initiated into all the mysteries of whaups, cocks, pikes, &c. But the miller's words come true. Mickel Fell put on his cap of mist, a gentle rain begins to fall which soon develops into a steady downpour; we philosophically resign ourselves to a thorough wetting when fortunately the clouds begin to lighten, the sun struggles forth, and we have no more rain all day. Botanically the district is tame and uninteresting, there is no variety in the vegetation. The swampy spots produce only the coarsest and commonest rushes and sedges, and the drier, fell bents and grasses. By the roadside we gather the neat little white-flowered knotted pearlwort (*Sagina nodosa*), and in a muddy runnel one of the white-flowered aquatic ranunculi (*Ranunculus Lenormandi*), a plant not yet recorded for Durham and only once found in Northumberland, but of other varieties we find none. The luxuriant growth of the purple selfheal, or heart of the earth (*Prunella vulgaris*), indicates the siliceous, gritty, sour character of the soil, making it hopeless of a remunerative return for cereal cultivation. But at length the chequered landscape with its interminable fences is left behind, the last gate swings open, and we are on the open trackless moor, with nothing but peat and heather between us and the vale of Eden. We rapidly descend to the bed of the stream, now shrunk to the dimensions of a mountain burn, brawling over a bed of gigantic boulders, whence probably the name of Balder or Boulders beck and dale has originated. A moiety of our party here

try their fortune at fishing, whilst the enthusiastic herborisers commence their search for the rare plant (*Saxifraga Hirculus*) they have come so far to seek. Its locality forty years ago in this, its only Yorkshire, station is very plainly indicated in Baine's "Flora of Yorkshire," but it has evidently been unable to survive the vicissitudes of the past half century, for we search carefully and zealously for it in vain. The rounded moors here closely hem in the contracted vale, which is rarely more than one hundred yards in width. The stream meanders from side to side, and we have often to cross it on slippery stepping-stones—securing peeled shins and wet feet—to avoid the precipitous crags on either side, or to pass the steep gullies which seam and drain the adjacent moors. The vegetation becomes scantier the higher we get, the purple foxglove and yellow hawkweed being the most conspicuous flowers, and we contrast the rich botanical treasures of the neighbouring Teesdale tract. The only living beings in sight are the wild mountain sheep, which hurry away at our approach, and the dark water ouzel flitting from stone to stone. On we go, passing numerous affluents, until, ascending a steep knoll, which seems to bar our further progress, we see the various sources of the Balder emerging in tiny rills from the swampy peaty moor. We are reluctantly compelled to be contented with the negative satisfaction that our rarity is not now to be found, so, after repeating Wordsworth's lines, viz.,

The wandering botanist—who, clear alike
From vain, and that worse evil, vexing thoughts,
Casts on these uncongenial forms a slight regard
Of transitory interest, and peeps round
For some rare floweret of the hills, or plant
Of craggy fountain. What he hopes for wins,
Or learns at least that 'tis not to be won;
Then keen and eager as a fine-nosed hound,
By soul-engrossing instinct driven along,
Through wood or open field the harmless mass
Departs, intent upon his onward guest:

we retrace our steps, rejoin our friends, and after a stiff walk reach Cotherstone in time to catch the train for home.

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AN ILLUSTRATED

Penny Weekly Magazine of Natural History.

CONDUCTED BY

J. E. ROBSON AND S. L. MOSLEY.

No. 98.

SEPTEMBER 24TH, 1881.

VOL. 2.

Part XXII.—OCTOBER, contains:—Field Clubs, 305. Notes, Captures, &c., 307, 322. Contributions towards the Fauna of Plymouth, 308. British Birds, their Nests and Eggs, 309. British Butterflies, 310, 315. The Weather, 313. To Correspondents, 315, 222. The Harebell, 317. Cases for Stuffed Birds, 321. Exchange, 322. Flamboro Head, 323. Natural History Diary, 324. A Day in Baldersdale, 325.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY, Beaumont Park, Huddersfield.

Mr. Mosley has been from home for some weeks in consequence of the serious illness of his father, and the plates that should have been issued this week are not ready, but will be sent with the next number. He trusts the delay will be excused under the circumstances, and that his correspondents will pardon him not replying to their communications so promptly as he could wish.

EXCHANGE.

Wanted, a good adult King-fisher in the flesh.—S. L. MOSLEY, Beaumont Park, Huddersfield.

Will exchange British birds' eggs and butterflies for foreign ones and skins.—JOHN EGGLESTON, Park Place, West Sunderland.

DUPLICATES: Larvæ of *P. bucephala*, and larvæ or pupæ of *V. c-album*. **DESIDERATA:** numerous, larvæ preferred to imagines.—(Miss) R. PRESCOTT DECIE, Bockleton Court, Tenbury.

Larvæ of *H. psi*, *Oleracea*, and *A. psi*, imagines of *P. chi*. **Desiderata** very numerous.—F. G. SCOTT, 4, Queen-street, Newcastle-on-Tyne.

NOTES, CAPTURES, &c.

THE SCLAVONIAN GREBE IN DURHAM.—I have got a female Sclavonian Grebe that was got here on the 25th August. I think

THE YOUNG NATURALIST.

it rather a strange time for this bird to occur here. There was a fine male got here in February last.—THOMAS HANN, Byers Green, Durham.

SPHINX CONVULVULI.—On September 11th, we took a specimen of *S. convolvuli*, in the daytime, while at rest on a window frame.—R. PRESCOTT DECIE, Bockleton Court, Tenbury.

SPHINX CONVULVULI AT GATESHEAD.—On September the 2nd I had a female specimen of *Sphinx Convolvuli* brought to me, it had been caught about a mile from the town: The last record of this insect about here was one near Swalwell in 1871.—A. BRAMWELL, Prior Street, Gateshead.

SPHINX CONVULVULI NEAR BIRMINGHAM. Yesterday, September 16th, a boy brought a specimen of *Sphinx Convolvuli*, caught in the old church at Handsworth, near Birmingham, to Mr. E. F. Spicer, taxidermist of this town, who has since kindly given it to me.—P. T. DEAKIN, 46, Princess Street, Birmingham.

LARVÆ OF ABRAXAS ULMATA AT INCE.—The larvæ of this pretty insect are now feeding in countless myriads on the elms bordering the road to Ince Blundell. They have, in many instances, completely stripped whole branches of their foliage, and a blow from a stick will instantaneously dislodge twenty or thirty. They rest in a straight posture on the underside of the leaf but are very troublesome to box, owing to their habit of clinging tightly to a slight web spun to the surface.—C. H. H. WALKER, Liverpool.

PUPÆ OF S. LIGUSTRI.—It may interest Mr. Davis to know that out of sixteen larvæ of this moth, seven entered their quiescent state between the middle and the close of August. Up to the time of writing, eight more have pupated, while the last larva is not yet half fed.—Charles H. H. WALKER, Liverpool.

NOTE ON ENNOMOS ALNIARIA (AUTUMNARIA).—We have been reminded in our magazines that this appears to be the great yellow underwing year. (*Tryphæna prænuba*). Well, this insect like "the poor is always with us," and we may let it pass with this remark, that in one place or another, or in both, it is always in profusion, but does not always come to sugar. What I wish to call the attention of our young friends to is the fact that this year or next is intended by certain people to be the great *Alniaria* (*autumnaria*) year. For two years, as I have gone over a number of collections at sundry times, I have noticed (especially in small collections) that *Alniaria* was in series in them, and have been curious to know where they were obtained, and have listened to very lame accounts, how a friend took them at gas-lamps and got eggs from them, &c., &c., and had kindly given them for this, that, and the other "gem," it never having struck these dupes that the females of this genus *Ennomos*, (however common the species), rarely, if ever, come to light, especially after copulation. Her business is then to lay her eggs, not flying about to lamps, &c. And knowing that a considerable number of this species were imported in 1879 and 1880, I am inclined to fight shy of any of those which have been bred this autumn, and which are in such numbers that entire new sets of setting boards have had to be made to set them upon. As it is now about the time to take them off the sets and distribute them, I expect we shall soon hear that this is the great *Alniaria* year; but I harbour the opinion that our young friends who wish to make British collections should look twice at their own "gems" before exchanging them for doubtful specimens of only reputed British species, if bred from imported eggs or pupa. Of course, old collectors will not be caught with chaff.—S. C. GREGSON, Rose Bank, Fletcher Grove, Liverpool.

September 3rd, 1881.

THE YOUNG NATURALIST.

FOR SALE OR WANTED.

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1. The announcements will be confined to Books on Natural History or Scientific Subjects, Cabinets, Store Boxes, and other Collectors' requirements, either wanted, or to be disposed of.
2. An uniform charge of 4d. for 12 words will be made, and 1d. for every three words additional.
3. Where the address is published, the words of the address will be counted, and charged for.
4. Where the advertizer does not desire his address to be published, a number will be appended, and all replies to such advertisements must be sent with one stamp for postage to the conductors of this magazine, by whom they will be forwarded.
5. When an article is agreed to be purchased for Cash, the money may be sent in blank Postal Orders, to the con-

ductors of the magazine, who will hold it until the article has been received, and found to be as represented, when it will be sent to the seller. One extra stamp must be sent for postage.

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No. 99.

OCTOBER 1st, 1881.

VOL. 2.

PREPARING SHELLS FOR THE CABINET.

WE have several times been asked questions on this subject, and promised the last enquirer an article upon it, which is here given.

Though professional oyster openers find little difficulty in separating the living mollusc from its shell, the amateur will only accomplish this at the risk of considerable damage to both the shell and his own digits. The muscular attachment of bivalves to their shell is extremely powerful, and they cannot be opened alive without injury, while the animals inhabiting univalves retreat to the recesses of their shells when alarmed and then cannot be reached. It is necessary therefore to kill the animals in all cases before it is attempted to remove them, and for bivalves it is only necessary to boil them or throw them into boiling water.

The integument of the hinge is elastic, and aided by the cartilage, an elastic substance which is compressed when the valves are closed, the shells open so soon as the muscles used for closing them relax their power. This they do when the animal dies, and the shell will generally gape open after being boiled.

If boiled sufficiently these adductor muscles will even leave the shell, and its inside is then quite clean. It is now necessary to close the valves again, and to do this, after drying thoroughly the inside, take a length of ordinary sewing cotton, wet it, and after wrapping it several times round the shell, tie it, and leave the whole to dry. If you neglect to wet the thread, it will stretch so much that you will find it impossible to get the valves quite close; but when wet, you not only get them close, but the thread is not so apt to slip in tying, and in drying it contracts a little, and keeps all close and firm until set in position. As for the outside, you must use a considerable amount of discretion in cleaning it. In some species the outside is more or less covered with hairs, and great care must be taken not to remove any of these, or indeed any natural covering, while dirt and all parasitic incrustations are better removed.

For bivalves, and more particularly for the smaller ones, another process is necessary. Boiling them, or immersing them in hot water no doubt kills them equally well, and loosens them from the shell, but they are so apt to retreat as far as possible into their shell, that

it often becomes a matter of difficulty to get the animal out. The larger ones may be removed with a pin, a process we may see carried on at any street corner whereperiwinkles are sold, but such rough usage will not do for the more delicate land and fresh water shells. With these it is necessary to kill the animal while expanded, and this may be done by placing them first in cold water, when land shells as well as water shells will expand; the former even more so than the latter, stretching their bodies to the uttermost in their endeavours to escape from the unnatural element. When thus extended, hot water should be gradually added, so as to kill them without their drawing back into the shells. They may then be boiled or scalded and the animal is easily removed.

We will not pretend to decide which is the best method of arranging them in the cabinet. Some prefer little cardboard boxes with or without glass lids, or they may be displayed on cards or glass tablets. We have a preference for the latter method, which enables a good deal of information as to locality, &c., where the specimen was obtained, to be written with the name of the species. The largest collection we ever saw had the species in neat little cardboard boxes; the best arranged collection we ever saw had them arranged on plate glass tablets neatly covered with light drab paper, and with a piece of either black or white paper pasted on the central portion, leaving about quarter of an inch margin all round. No doubt this was a deal of trouble, but it looked

wonderfully well, and the smaller shells were seen to best possible advantage. If this method be adopted, the shells should be gummed on so as to show the various parts. Univalves must show both spire and mouth, bivalves both the inside and the outside of the valve.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY Beaumont Park, Huddersfield.

The next part of Mr. Mosleys "Varieties of British Lepidoptera" will contain several plates of remarkable varieties of the genus *Cidaria*. He will be glad to hear of any striking forms he has not yet figured, especially of *Immanata* and *Russata*.

EXCHANGE.

DUPLICATES.—*Rhamni*, *Cardamines*, *Ægeria*, *Auriflua*, *Menthastri*, *Lubricipeda*, *Caja*, *Oxyacantha*, *Polyodon*, *Pronuba*, *Orbona*. *Rumicis*, *Elinguaria*, *Amataria*. DESIDERATA.—*Sinapis*, *C. Album*, *T. Quercus*, *W. Album*, *Mundana*, *Camelina*, *Zizcac*, *Herbida*, *Adusta*, *Myrtilli*, *Conspicuata*, *Dealbata*, *Notata*, *Fasciaria*, *Punctaria*, *Candidata*, *Bisetata*, *Exanthemaria*, &c. —H. FRERE, Queen's Road, Kingston-on-Thames.

Will exchange British birds' eggs and butterflies for foreign ones and skins.—JOHN EGGLESTON, Park Place, West Sunderland.

DUPLICATES: Larvæ of *P. bucephala*, and larvæ or pupæ of *V. c-album*. DESIDERATA: numerous, larvæ preferred to imagines.—(Miss) R. PRESCOTT DECIE, Bockleton Court, Tenbury.

Larvæ of *H. psi*, *Oleracea*, and *A. psi*, imagines of *P. chi*. Desiderata very numerous.—F. G. SCOTT, 4, Queen-street, Newcastle-on-Tyne.

NOTES, CAPTURES, &c.

THE SCLAVONIAN GREBE IN DURHAM.—I have got a female Sclavonian Grebe that was got here on the 25th August. I think it rather a strange time for this bird to occur here. There was a fine male got here in February last.—THOMAS HANN, Byers Green, Durham.

SPHINX CONVULVULI.—On September 11th, we took a specimen of *S. convolvuli*, in the daytime, while at rest on a window frame.—R. PRESCOTT DECIE, Bockleton Court, Tenbury.

SPHINX CONVULVULI AT GATESHEAD.—On September the 2nd I had a female specimen of *Sphinx Convolvuli* brought to me, it had been caught about a mile from the town: The last record of this insect about here was one near Swalwell in 1871.—A. BRAMWELL, Prior Street, Gateshead.

SPHINX CONVULVULI NEAR BIRMINGHAM. Yesterday, September 16th, a boy brought a specimen of *Sphinx Convolvuli*, caught in the old church at Handsworth, near Birmingham, to Mr. E. F. Spicer, taxidermist of this town, who has since kindly given it to me.—P. T. DEAKIN, 46, Princess Street, Birmingham.

LARVÆ OF ABRAXAS ULMATA AT INCE.—The larvæ of this pretty insect are now feeding in countless myriads on the elms bordering the road to Ince Blundell. They have, in many instances, completely stripped whole branches of their foliage, and a blow from a stick will instantaneously dislodge twenty or thirty. They rest in a straight posture on the underside of the leaf but are very troublesome to box, owing to their habit of clinging tightly to a slight web spun to the surface.—C. H. H. WALKER, Liverpool.

PUPÆ OF *S. LIGUSTRI*.—It may interest Mr. Davis to know that out of sixteen larvæ of this moth, seven entered their quiescent

state between the middle and the close of August. Up to the time of writing, eight more have pupated, while the last larva is not yet half fed.—CHARLES H. H. WALKER, Liverpool.

NOTE ON ENNOMOS ALNIARIA (AUTUMNARIA).—We have been reminded in our magazines that this appears to be the great yellow underwing year. (*Tryphana pronuba*). Well, this insect like "the poor is always with us," and we may let it pass with this remark, that in one place or another, or in both, it is always in profusion, but does not always come to sugar. What I wish to call the attention of our young friends to is the fact that this year or next is intended by certain people to be the great *Alniaria* (*autumnaria*) year. For two years, as I have gone over a number of collections at sundry times, I have noticed (especially in small collections) that *Alniaria* was in series in them, and have been curious to know where they were obtained, and have listened to very lame accounts, how a friend took them at gas-lamps and got eggs from them, &c., &c., and had kindly given them for this, that, and the other "gem," it never having struck these dupes that the females of this genus *Ennomos*, (however common the species), rarely, if ever, come to light, especially after copulation. Her business is then to lay her eggs, not flying about to lamps, &c. And knowing that a considerable number of this species were imported in 1879 and 1880, I am inclined to fight shy of any of those which have been bred this autumn, and which are in such numbers that entire new sets of setting boards have had to be made to set them upon. As it is now about the time to take them off the sets and distribute them, I expect we shall soon hear that this is the great *Alniaria* year; but I harbour the opinion that our young friends who wish to make British collections should look twice at their own "gems" before exchanging them for doubtful specimens of only reputed

British species, if bred from imported eggs or pupa. Of course, old collectors will not be caught with chaff.—S. C. GREGSON, Rose Bank, Fletcher Grove, Liverpool.

September 3rd, 1881.

CORRESPONDENCE.

Dear Sir,

Allow me to draw your attention to the following statement in Kirby and Spence's Introduction to Entomology. "The larva of *D. vinula* has a cleft in the neck, between the head and the first pair of legs. From this issues, at the will of the animal, a singular syringe, laterally bifid, the branches of which are terminated by a nipple perforated like the rose of a watering-pot. By means of this organ, when touched it will syringe a fluid to a considerable distance, which, if it enters the eyes, gives them acute but not lasting pain. *The animal when taken from the tree on which it feeds, though supplied with its leaves, loses this faculty, with which it is probably endowed to drive off the ichneumons that infest it.*"

Now yesterday I took one to examine it, and as I turned it over, it made use of this organ with great effect, for some of the fluid entering a cut in my thumb, caused it to smart considerably, so I thought I had better suck it out a little, and found it to taste very like tartaric acid, and it had also a very strong smell which lasted for about half-an-hour. But why I point this out to you is that this larvæ was taken fully a week previously, and in another district altogether; and according to Kirby and Spence, should have lost this power. I should like to know if any of your subscribers have observed the faculty as described.

Is *H. humuli* double brooded? Because Mr. A. Bramwell took a fine male a week ago, and last year (1880), I took two males and a female on the 3rd September. All the books I have seen give June and July for the moth.

I have taken a Swift (on July 1st, 1881), which is about the size of the Northern Swift; the fore wings are russet or brick-red colour, with a pure white spot in the centre. The hind wings smoky grey. All the wings have a narrow border, of a dull yellow tint, barred at the nervules with the same colour as the wings they are on. Body dull brown, antennæ and legs slightly darker, underside smoky brown. Please say what it can be as I am in a fix about it.—JOHN FRENCH, 85, Harle Street, Gateshead-on-Tyne.

[The Swift that puzzles you will be *H. sylvinus*. *H. humuli* is certainly not double-brooded. It is probably more than one year in the larva state, and thus might emerge any time, but it is generally very regular in its appearance. We shall be glad to hear if others have noticed it at abnormal dates.—EDS. Y.N.]

HAGGERSTON ENTOMOLOGICAL SOCIETY.

—The Haggerston Entomological Society will hold an Exhibition of Insects, &c., at the school-rooms of All Saints' Church, Haggerston Road, E., on Friday, October 21st, 1881. The following members have already promised exhibits:—Mr. Anderson (President), Lepidoptera; Mr. H. Bartlett, Lepidoptera; Mr. Barnes, Life Histories in Lepidoptera; Mr. J. A. Cooper, Lepidoptera, &c.; Mr. W. Harper, Lepidoptera; Mr. Eedles and Mr. Hockett, Entomology, &c.; Messrs. Russell, J. Henderson, Pearson, Cripps, Jobson, Gurney, Franklin, and Albuay, Lepidoptera; Mr. G. A. Lewcock, Lepidoptera and Coleoptera. Tickets of admission (free) may be obtained by enclosing directed envelope and postage to the assistant secretary, Mr. G. A. Lewcock, 40, Oxford Road, Islington, N.; or by applying to the secretary, Mr. C. Allen (on Thursday evenings), at the Society's Room, 10, Brownlow Street, Dalston.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y.N.)

ARION, L. Pl. 24, Fig. 4.

The Large Blue.

"ARION, L., *Arion*, a celebrated Lyric
Poet, Cf., Her. i. 23.—A.L.

Imago.—Pl. 24, Fig. 4. Deep dark blue, hind margin black; THERE IS A BLACK CENTRAL SPOT ON THE FOREWING AND FOUR OR MORE WEDGE-SHAPED SPOTS BETWEEN IT AND THE HIND MARGIN. The hind wing is scarcely so blue as the forewing, and there is sometimes a row of black spots similar to those on the forewing, but more frequently there are only faint traces of them. Underside silvery grey, with a blue tinge near the base; the black spots are large with white rings; *there are none nearer the base than the disc spot*, and there is a DOUBLE ROW round the hind margin. There are no orange spots at the hind margin.

Larva.—When eleven days old, Mr. Porritt, of Huddersfield, thus describes the larva of *Arion*. "Length about one-sixth of an inch; stout, but tapering towards the head, which is much smaller than the second segment; the general colour was dirty pink, the head brown and shiny; behind the head is a large, almost plate like, dull black mark, from which extends the rather broad conspicuous rust-coloured dorsal line; the body is sparingly clothed with light brown hair."

Pupa.—I know of no description.

Food Plant.—Wild Thyme (*Thymus serpyllum*). Mr. Porritt's larva would have appear to eaten the flower at first, though it stretched itself along the midrib of a leaf when about to moult.

Times of Appearance.—The butterfly appears in average seasons about the second week in June, and continues to emerge for three or four weeks. In forward seasons it has been taken as early as the 6th June. The larvæ hatch early in July, and

there my knowledge of it ends. Newman says that Mr. Porritt's larvæ hatched on 4th May, but this is a blunder and should be 4th July, as a reference to the original passage will show.

Habitat.—In England this butterfly is both rare and local. It appears to be most abundant in Devonshire, Gloucestershire, Northamptonshire, and Somersetshire, and has occurred or is still found in Bedfordshire, Buckinghamshire, Dorsetshire (once), Hampshire, Herefordshire, Huntingdonshire, and Wiltshire. It does not occur in any other portion of the British Isles. It is found all over Europe, except in the extreme north, and in Northern and Western Asia.

Variation.—A variety called *Alcon*, by Stephens, is not very rare in collections. It is generally smaller than the type, and is without the black spots on the forewing, except that at the disc. The spots on both the upper and under sides vary in number and size. An underside, from a specimen in Mr. Bond's collection, is figured in Newman, in which they are extra large and numerous. Another form is named *Cyanecula* Eversm., from North-eastern Siberia.

Genus III. Thecla, Fab.

"THECLA, F., *Thecla*, Virgin and Martyr. Cf. Butler's Lives of the Saints, ix., 286."—A.L.

THECLA is a genus of which between five and six hundred species are now described. Its head quarters appear to be America, where more than nine-tenths of the species occur. A few are found in Asia and Africa. Nine or ten in Europe, of which five are British. Most of the species are tailed. Many of them have one or more fine lines across the underside of both wings, whence the common name "hair streak." A curious characteristic of the genus is that the members of one sex, generally the male, often have a "satin or plush-like patch on the forewings at the extremity of the discoidal cell."

The five British species may be distinguished as follows:—

I.—Underside of wings green.—*Th. Rubi*.

II.—Underside of wings with two slender streaks.—*Th. Betulae*.

III.—Underside of wings with one slender streak.

(a) Underside of hind wings with a distinct orange band.—*T. Pruni*.

(b) Underside of hind wings with two or three orange lunules at the hind margin.—*T. Walbum*.

(c) Underside of hind wings with an orange spot at the anal angle and another near it with black centre.—*Th. Quercus*.

The larvæ are onisciforme, but those I have seen are rather more rounded than the larvæ of the "Blues" or "Coppers." Several of them are known to be cannibals, and one or more have been observed to change on or below the surface of the ground, but the pupæ as a rule are fastened by the tail, and with a silk band round the middle.

RUBI, Linn. Pl. 18, fig. 1.

The Green Hairstreak.

"RUBI, L., *Ru'bi*, feeds on Bramble (*Rubus fruticosus*)."—A.L.

Imago.—Pl. 18, fig. 1. Dark brown, without markings. Underside green. The "hair streak" is represented in this species by a row of dots across both wings, which are rarely distinct, and often quite invisible.

Larva.—Yellowish green with a darker dorsal line, and pale yellow oblique lines on each segment above the spiracles. Spiracular line the same colour and interrupted. Between these streaks are markings of darker green. The body is covered with little white warts.

Pupa.—Short and stumpy, rather rounded; dark red brown in colour.

Food Plants.—A number of plants are named as the food of this species, on many of which it certainly feeds, others appear to be more doubtful. It certainly feeds on Bramble (*Rubus fruticosus*), from which it is named. Merrin also gives "Broom, *Genista*, Birch, *Salix fusca*, and

Bilberry." Guenée has found it on Broom and *Genista* (no doubt *G. tinctoria*, Dyers greenweed). Wilson also gives "Furze;" and Newman says one of Hubner's figures is represented on the Sun Cistus.

Times of Appearance.—This little butterfly appears on the wing in May and continues out till June, toward the end of which month and in July the larvæ may be found. The pupa is fastened to the food plant and remains over the winter. Owen Wilson states that it is "in a cocoon amongst the food plant;" but when I bred the insect it certainly formed no cocoon, and I should be glad to hear the experience of others.

Habitat.—Open places in woods and bushy overgrown waste land, lanes, &c. Common generally throughout Britain, and probably only overlooked where not well known. It occurs all over Europe, in Western Asia, and Northern Africa.

Variation.—A very constant species, the spots forming the "hair streaks" being the only variable portion. A variety in Mr. Gregson's collection has irregular portions of the wing much paler than usual, resembling the well-known variety of *S. Janira*. One form is named in Kirby's catalogue, *Dumelorum*, Birsd., from California, but I know nothing of it, and should think by the locality it is likely to be a distinct species.

QUERCUS, Linn. Pl. 18, fig. 2.

The Purple Hairstreak.

QUERCUS, L., *Quer'cus*, feeds on Oak, (*Quercus robur*)."—A.L.

Imago.—Pl. 18, fig. 2. Brown, with a rich bluish gloss. Female with a rich purplish blotch on the forewings near the base. Underside ash-coloured, a distinct white line across both wings, and several pale marks near the hind margin; orange spots at the anal angle of the hind wing, the second one with a black centre; there are faint traces of similar spots at the anal angle of the fore wing.

Larva.—Onisciforme, with a depression on the back as in the "Blues," the segments appear to overlap. Head small and retractile; colour brownish green. A dorsal row of pinkish arrow heads. Spiracular line light bordered with brown. Spiracles brown.

Pupa.—Short and stumpy. Dull reddish brownish. *On or under the surface of the earth.* I would be glad to hear from those who have reared this species freely, if its pupa is ever attached.

Food Plants.—The larva is generally understood to feed on oak only, and in a state of nature appears to prefer the upper branches. Owen Wilson also gives Sallow, and Newman conjectures that it may sometimes feed on Ash.

Times of Appearance.—This butterfly appears on the wing in July, and the eggs remain on the oak twigs over the winter, hatching in May; the larva is full grown in June.

Habitat.—Woody places all over Britain, and equally well distributed over Europe, but not extending further.

Variation.—Only one form is named, *Bellus*, Gerh., which I do not know. Abnormal forms are very rare. Mr. S. Stevens has a specimen with the male colour on one side, and female on the other. A specimen with a wedge-shaped orange spot on the forewings is recorded by Mr. Norgate, of Sparham, at page 69 of the *Entomologist* for 1874. This reminds one of *Betula*, q.v.

W-ALBUM, Kn. Pl. 18, Fig. 3.

The Black Hairstreak.

"W-ALBUM, Kn., *W-Al'bum*, on account of the white on the underwings."—A.L.

Imago.—Pl. 18, Fig. 3. Dark brown, with one orange spot at the anal angle of the hind wing, often very indistinct. Under-side ashy brown, with a row of orange lunules at the hind margin, most distinct at anal angle. A white line crosses both wings,

and forms a **W** near the inner margin of each.

Larva.—Pale bright green, with a depression on the back of a brownish colour. The segments overlap, and the ridges at the edge of this dorsal depression are pale yellow. On the sides of each segment are two pale yellowish lines. Head dark brown and retractile, the sides project over and hide the prolegs and claspers. The whole surface is covered with soft delicate hairs.

Pupa.—Short and stumpy, attached by the tail and by a belt of silk round the middle.

Food Plants.—Elm appears to be the natural food of the larva, but it is also found on the Wych Elm, and will eat Blackthorn.

Times of Appearance.—The butterfly appears at the end of June or in July, and continues on the wing until August. The egg is laid on the elm twigs in July or August, and remains in that state till spring, hatching about May. The larva is full fed in June, and remains about a fortnight in pupa.

Habitat.—Parks, woods, and lanes. Not of general distribution in England, though occurring in many places. It is not found in the more Northern counties, nor so far as I know, in Scotland or Ireland. It is found in Central and Southern Europe, in Northern and Eastern Asia and Asia Minor.

Variation.—Not a variable insect, and no form of it is named, while aberrations are exceedingly rare. A very beautiful specimen is figured in Newman's *Butterflies*, and also in Mosley's "Illustrations." It has the hair-streak represented by a white band, broadest at the costa, and tapering to a fine line about the middle of each wing. It was taken in Old Hall Wood, near Ipswich, in 1859 or 1860, and is now in Mr. Sidney Webbs collection.

THE YOUNG NATURALIST.

E. G. MEEK,

NATURALIST,

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The YOUNG NATURALIST :

A Penny Weekly Magazine of Natural History.

No. 100.

OCTOBER 8TH, 1881.

VOL. 2.

FIELD CLUBS.

WHILE we were thinking over the rules we should suggest for the proposed Field Clubs we received the following :—

To the Editors of the "Young Naturalist." I propose that the following be some of the rules of "The Young Naturalist Field Clubs."

1. "That it shall be called 'THE YOUNG NATURALIST FIELD CLUB.'"

2. That its object shall be the furthering of the study of natural history among young people, investigating the natural history of the neighbourhood, keeping a calendar of the earliest dates of flowering of plants, when insects are first on the wing, &c., &c.

3. That some naturalist be asked to become the president, and that a secretary be chosen from among the members.

4. That the age be restricted from seven to eighteen years of age.

5. That Field Meetings be held at least once a month during November, December, January, and February; twice during March, April, May, September, and October; and three times during June, July, and August. The meetings may be increased in number if the members desire.

6. That the entrance fee be sixpence.

7. That once a year a room be hired and an exhibition of the collections be made to friends.

8. That papers, essays, &c., on natural history, be read by the members at the field meetings.

9. That the secretary keep a list of

members' names and addresses, minutes of the meetings, calendar, &c.

10. That the *Young Naturalist* be the organ of the society.

Note to the Editors.

I suggest you publish a member's card at about 1d. each, and that if arrangements can be completed by the 1st Nov., you receive names of clubs and members for publication in the *Young Naturalist* as they come in. For example :—

Branch 1, Blandford.

W. Brown.

E. Jones.

J. Robinson, &c., &c.

Branch 2, Great Marlow.

W. Smith, &c., &c.

I will get a branch up at Great Marlow as soon as the arrangements are complete.—Yours truly, A. Davis, High Street, Great Marlow, Bucks.

So far our correspondent to whom we are much obliged. Probably these rules may answer better than the more elaborate ones we were thinking of. The only point which we take exception is the age. We would suggest twelve as being a more suitable age to begin it, and we do not know there will be any advantage in fixing eighteen as the limit in the other direction. If a club of fine intelligent young people got together why need they leave it at eighteen or any age. Rather, we think,

let another Club be formed for younger members, or let them have a juvenile branch after so many years.

Mr. Davis proposes an entrance fee of sixpence, but no further subscription. In our article on the subject (p. 305) we suggested that course, but we are now inclined to think that a small subscription, say of 1d. or 2d. per month, would perhaps keep the members better together, and these funds could be used for any purpose of the club that the members could not individually afford, books, cabinets, or even as we said before, for some special excursion.

With reference to these and other points, we do not know there is any special advantage to be gained in having the rules for the Clubs exactly the same in every place. Let the objects be the same, the objects to be attained the same, and the age, subscription, &c., may be left to the discretion of the members. Might we suggest an additional rule, that an account of the proceedings of the Club shall be sent to the "Young Naturalist" at least every three months.

We will be pleased to hear from other readers their views and opinions, and so far as we can aid the proposed Clubs we shall be only too glad to do so. The new volume of the "Young Naturalist" commences on November 5th, and we will arrange to appropriate a portion of our paper for the particulars of any Clubs formed by them. We would advise that in sending us names, &c., the secretary be mentioned and his postal address given, so that others may communicate with him when desired.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY Beaumont Park, Huddersfield.

EXCHANGE.

DUPLICATES.—*Edusa*, *Galathea*, *Atalanta*, *Corydon*, *Cardamines*, *Janira*, *Io*, *Euphrosyne*, *Phleas*, *Megara*, *Pamphilus*, *Quercus*, &c., exchange for moths, &c.—JOHN EGGLESTON, 8, Park Place, West Sunderland.

DUPLICATES.—Good *Tritici*, *Lineolata* (a few), *Variegana*, &c. DESIDERATA.—Good specimens only of *Euphrosyne*, *Hyperanthus*, *Adonis*, *Corydon*, *Alsus*, *Argiolus*, *Sylvanus*, *Linea*, and *Alveolus*, to renew my series.—C. H. H. WALKER, 180, Falkner Street, Liverpool.

NOTES, CAPTURES, &c.

ENNOMOS AUTUMNARIA—ALNIARIA. — I quite endorse Mr. Gregson's caution, published in No. 98 of the *Young Naturalist*, as to the necessity of care being used before introducing so rare an insect as *E. autumnaria* into our English cabinets; as it is a well-known fact that many of the species have been bred this season from *Foreign eggs*.

But for the genuineness of the origin of the 36 ova I received from Mr. Harbour, of Deal (and from which I have this season bred 32 imagines), I can vouch for them in fullest confidence as being the offspring of a female Moth, taken at light at Deal, in the Autumn of 1879. Mr. Gregson's proverbial courtesy and modesty will hardly permit him to doubt *my jealous desire*, equally with his own, for striving to uphold the purity of our English collections.—W. H. TUGWELL 3, Lewisham Road, Greenwich, S.E.

CONTRIBUTIONS TOWARDS THE FAUNA OF PLYMOUTH.

By MR. G. C. BIGNELL, M.E.S.

(Reprinted by permission of the author from the Transactions of the Plymouth Institution and Devon and Cornwall Natural History Society, 1881.)

HYMENOPTERA, ICHNEUMONIDÆ.

Arranged according to the Rev. T. A. Marshall's Catalogue, published by the Entomological Society of London, 1872.

PART I.

(Continued from page 308.)

CRYPTUS.—

lugubris.

analis.

rufiventris.

signatorius. Bred from an old bramble stem, 6th May, 1878.

MESOSTENUS.—

obnoxius. Bred from *Zygæna filipendulæ* cocoons, in which they remain during winter, and emerge from the middle to the end of June (19th June to the 3rd July, 1879.)

HEMITELES.—

tenebricosus. Taken at Plymbridge, 5th June, 1880.

similis.

formosus. Bred from spiders eggs (*agelena brunnea*), 14th July, 1878.

cingulator.

AGROTHERENTES.—

hopei.

HEMINACLIUS.—

fasciatus.

(To be continued.)

"WHEN we first went to look at our new home at Nazareth, a *Morpho Menelaus*, one of the most beautiful kinds, was seen flapping its huge wings, like a bird, along the verandah. This species, however, although much admired, looks dull in colour by the side of its congener, the *Morpho Rhetenor*, whose

wings, on the upper face, are of quite a dazzling lustre. *Rhetenor* usually prefers the broad sunny roads in the forest, and is an almost unattainable prize, on account of its lofty flight; for it rarely descends nearer the ground than about twenty feet. When it comes sailing along, it occasionally flaps its wings, and then the blue surface flashes in the sunlight, so that it is visible a quarter of a mile off. There is another species of this genus, of a satiny-white hue, the *Morpho Eugenia*. This is equally difficult to obtain; the male only has the satiny lustre, the female being of a pale lavender colour."—BATES "Naturalist, on the River Amazon."

THE ENTOMOLOGICAL SEA- SON IN THE LIVERPOOL DISTRICT.

By DR. ELLIS.

A few extracts from my journal for 1881 may prove of interest to some of the readers of the *Young Naturalist* as a contribution to the subject of the abundance or scarcity of insects during this year. So far as I can judge, the season has been one of great abundance of some species, as *P. rapæ* and *I. napi*, *N. zonaria* (imagines and larvæ), *Ichodaria sanguinalis*, *Eubolia lineolata*, &c.

February 20th. *H. leucophearia* very abundant in Eastham Wood, three of the specimens captured being the dark form in the "illustrations of the varieties of Lepidoptera."

March 13th. *Aphodius conspurcatus* and *A. prodromus* in swarms on the Wallasey Sandhills.

April 15th (Good Friday). *Nyssia zonaria* in swarms everywhere on the sandhills. In addition to the *Aphodii* mentioned March 13th, *A. inquinatus* was in profusion all over the sandhills. Larvæ of *Bombyx rubi* have been very abundant.

May 3rd. *Bembidium pallidipenne* more abundant at Crosby than I have ever before seen it. (It remained out until July.)

May 19th. Larvæ of *O fascelina* at Crosby, on the Sallows.

May 23rd. *Pieris rapæ* and *P napi* in great profusion by the roadside near Spital and Bromborough. *T. tages* was swarming on the railway bank near the latter station.

May 25th. "Whites" quite as abundant at Liscard as on May 23rd at Spital.

May 28th. "I have never seen such a year for white butterflies." At Eastham, to-day, *P. rapæ* and *P. napi* swarmed. Hawthorn just coming into bloom!

June 2nd. Obtained several species of *Anaspis* and *Anthonomus*, the former in great abundance by beating hawthorn blossom. *Micropteryx calthella* swarming in buttercup flowers at Bromborough.

June 15. Larvæ of *Hibernia*, &c., very abundant on the oaks at Eastham.

June 20th. Larvæ of *Agrotis præcox* have been taken very abundantly by some of the young collectors about Crosby.

June 21st. Sugar at Wallasey. "One of the best nights I ever spent at sugar." About thirty species of *Noctua* were seen or taken, among which, *X. rurea* (and var. *combusta*), *Leucanea comma*, *A. exclamatoris*, *E. lucipara*, *H. oleracea*, *N. plecta*, and *T. pronuba* were in swarms.

June 28th. *Dyschirius* very abundant on the Crosby shore, three species along with *Bledius arenarius* in profusion.

July 14th. *Lycæna ægon* in swarms on Bidston Hill, along with *E. palumbaria* in still greater abundance.

During several evenings sugaring I have found *T. pronuba* and *X. polyodon* very common, but not more than usually so.

July 22nd. Cocoons of *L. filipendulæ* were excessively abundant all over the Crosby sandhills. I collected a large number in a very short time, but did not obtain any striking varieties.

I have remarked that the larvæ of *A. caja* have not been so abundant as usual this. I have seen only one specimen of *Pisua gamma* although I have not been out much lately. *Vanessa urticæ* has been quite as common as usual in our parks, &c., and "Bembids" have occurred on our shores in great abundance, especially the long-lost (to our district) *Bembidium lunatum*, which has been turned up by Mr. Smedley at Hightown and by myself at Aigburth, in profusion in both localities.—101, Everton Road, Liverpool, September 13th, 1881.

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by S. L. MOSLEY.

(Assisted by Contributors to the Y.N.)

PRUNI, Linn. Pl. 18, Fig. 4.

The Dark Hair-streak.

"PRUNI, L., *Pru'ni*, feeds on the Blackthorn (*Prunus spinosa*)."—A.L.

Imago.—Pl. 18., Fig. 4. Dark brown, with a row of orange lunules at the hind margin of the hind wing, most distinct at the anal angle. Sometimes a trace of these may be seen on the fore wing. Underside greyish brown, with an orange band at the hind margin, most distinct at the hind wing, where it has a row of black lunules on the outside, a row of black spots in silvery-blue lunules on the inside, and a silvery-blue line outside the black lunules. Hair streak silvery-blue, across both wings, bending round the hind margin of the hind wing.

Larva.—I do not know the larva at all, but it is described as of the usual shape, dorsal depression rather shallow, colour green, with yellowish lines.

Pupa.—Probably like others of the genus, short, smooth and stumpy, rather like those of the genus.





T. rubi,	1
" quercus,	2
" W-album	3
" Pruni	4
" betula	5

Food Plants.—Blackthorn (*Prunus spinosa*.) Kirby adds "oak and other trees."

Times of Appearance.—The Butterfly appears on the wing in June, and continues out till July. The egg is laid on the Blackthorn, but does not hatch till spring. The larva is full fed by the end of May. This species was not known as British till 1828.

Habitat.—Woods. In this country it is confined to very few counties. Derbyshire, Huntingdonshire, Monmouthshire, Northamptonshire, and Suffolk. Why its range should be so restricted does not seem easy to understand, as the larva feeds on so common a plant. Abroad it is found in Central Europe, France, Italy, and Scandinavia, Dalmatia and the mountainous districts of Western Siberia.

Variation.—Beyond the slight variation, already named, in the orange markings on the wing, I have heard of no departures from the type in this species, and there are no named varieties.

BETULÆ, Linn. Pl. 18., Fig. 5.

"BUTULÆ, L., *Betula*, feeds on the Birch (*Betula alba*)."—A.L.

Imago.—Pl. 18, Fig. 5. Male, dark glossy brown, with a black dash at the disc, and a faint yellowish patch before it. One or two orange lunules at the anal angle. Underside, yellowish brown, the disc streak quite distinct, a silvery line, with dark border inside, across the fore wing; at the costa there is a reddish brown wedge-shaped mark, one side of which joins the hair-streak. There are two similar silvery lines to the hind wing, the inner one only crossing about halfway, and forming the inner edge of a larger wedge-shaped reddish patch. Hind margin coppery red. The female resembles the male, except that it has a larger orange red band, beginning near the costa, and extending nearly to the anal angle of the fore wing.

Larva.—The dorsal depression very inconspicuous, the overlapping segments forming almost a ridge, distinctly divided at each. Colour bright apple green, with pale yellow lines and two rows of oblique streaks of the same colour. Spiracles whitish. Head brown and retractile.

Pupa.—Of the usual form. Short, stout, clear red brown in colour. Owen Wilson says they are suspended, but he does not say whether they also have the silken band round the middle. Newman's larva changed on the bottom of the breeding cage. I should be glad to hear the experience of those who have reared it freely.

Food Plant.—The larva feeds on the Birch (*Betula alba*), as its name implies. It also eats Blackthorn (*Prunus spinosa*) and other trees. Newman speaks of it as though Blackthorn were its only food, but that is not correct.

Times of Appearance.—This butterfly is later on the wing than any other of the genus. The earliest specimens emerge in July, and they continue to appear for some time, remaining out till September or even October. The eggs are attached to the twigs of the food plant, and do not hatch till Spring. The larva may be found in May or June, and they remain about three weeks in pupa.

Habitat.—This insect is widely distributed in England, except in the North-Eastern portion, not occurring in Yorkshire, Durham, nor Northumberland. It is recorded for Cumberland on the strength of a specimen *seen* in Baum Wood, near Carlisle, by Mr. J. B. Hodgkinson. Scotland appears to be entirely without the species, though it is common in some parts of Ireland. It has not a very wide range on the Continent, occurring in Central Europe, and the Southern portion of Russia. It extends to the Southern portions of Siberia and the Valley of the Amoor.

Variation.—Like others of the genus, *Betula* is remarkably constant to the type. One variety only is figured in Mosley's Illustrations, from a specimen in the cabinet of Mr. Bond, and which that gentleman thinks may be a hybrid between the present species and *Quercus*. One form is named in Kirby's catalogue, *Spinosa*, Gerh., but I know nothing of it.

Note.—Kirby places this species and *Quercus* under the Genus ZEPHYRUS, Dalm.—DIPSAR, West. But Westwood and E. Doubleday, who defined this genus, did not include them in it, but in *Thecla*, pointing out, however, certain slight differences in these two species. As I do not presume to decide disputed points, I place both species when I find them in our English lists, though it is probable they will eventually be removed from it.

Family V., Hesperiidæ, Lea.

"HESPERIIDÆ, Lea., *Hesperiidæ*, the family of which the genus *Hesperia* is the type.

As I have already spoken twice on the position of this family (See Vol. I. p.

Vol. II. p. 238), I need not now enlarge upon it. The HESPERIIDÆ are a large group numbering over fifty genera, and perhaps more than fifteen hundred species. Considerably more than half of them are natives of Tropical America. The Butterflies always have four branches to the precostal vein of the fore wings. The legs are all perfect in both sexes, and the middle pair have "a pair of spurs in the middle of the hind tibiæ, which are not found in any other butterflies." They fly in the hottest sunshine, and from their peculiar jerking flight have well been called "skippers." The pupa is always suspended by the tail, and has a silk band round the middle; but it differs from other Butterfly pupæ by being generally concealed in a rolled up leaf, after the manner of many *Heterocera*. The larva is rather long, cylindrical, not spiny, has a

large head and generally conceals itself in rolled up leaves. In many of their habits and characteristics they are more closely allied with the *Heterocera* or Moths than any other group; and whatever other difference there may have been in arrangement I believe all writers have agreed in placing the "Skippers" last.

Three genera are represented in Britain, which may be thus recognised.

I.—Black, with white spots. Genus I.—SYRICHTHUS.

II.—Greyish brown, with darker spots.

Genus II.—NISONIADES.

III.—Yellowish brown, with darker markings. Genus III.—HESPERIA.

These genera have had various names given to them, but I use those most adopted in this country.

Genus I., Syrichtus, Bdv.

This genus which is called THYMELE by Stainton and HESPERIA by Kirby contains over sixty species, of which all that I know are black with white spots. About fifteen of them are European, but only one British.

MALVÆ, Linn., } Pl. 26, fig. 2.
ALVEOLUS, Hub., }

The Grizzled Skipper.

"ALVEOLUS, Hub., *Alveolus*, a chess-board, 'the image being blackish, *chequered* with somewhat square, creamy-white spots,' (Sta.)"—A.L.

Imago.—Pl. 26, fig. 2. Greenish black, with a number of rather square white spots.

Larva.—Pale green with faintly darker lines; head dark brown.

Pupa.—"Dull white spotted with black."—Newman.

Food Plants.—Bramble and raspberry (*Rubus fruticosus* and *idaeus*).

Times of Appearance.—The butterfly appears about the end of May and continues until June. The larvæ emerge by





<i>Nemeobius</i>	<i>Lucina</i>	1
<i>Hesperia</i>	<i>Malva</i>	2
"	<i>Tages</i>	3
"	<i>Paniscus</i>	4
"	<i>Sylvanus</i>	5

the end of the month, and are full fed in September. They remain in pupa over the winter.

Habitat.—Abundantly distributed in England and Scotland, but I have not heard of its occurrence in Ireland. It is to be found all over Europe, in Asia Minor, &c.

Variation.—A well-known variation having the spots confluent is figured in Newman, and called *Lavateræ*, Haw. A still more extreme form of this variety is figured in Mosley's illustrations, from a specimen in the collection of Mr. Howard Vaughan, and called *Taras*, Meig. I believe these names both represent the same form, which Kirby calls *Fritillum*, W.V. *Melotis*, Dup., occurring in Syria, is larger, and has the hind wings all white on the underside.

Note.—This species is now called *Malvæ*, Linn., by writers, and this name should be adopted as it dates from 1761 and Hubner's name of *Alveolus* only from 1798. Indeed a British author, Lewin, used the name *Malvæ* as early as 1795.

NISONIADES, Hub., 1816.

THANOS, Bdv., 1832.

"THANAOS, Bdv., *Than'os*, perhaps a typographical error for *Thanatos*, *Death*. If this be so, the name must have been in allusion to the dark colour of the species." —A.L.

A genus of about 50 species, of which but two occur in Europe, and only one in Britain. They are mostly brown in colour, "with ashy coloured undulating bars." The males have the costal margin of the fore wings double, or folded, the inside of the fold being covered with fine downy hairs, as in the last genus, from which they may be distinguished by the fringe of NISONIADES not being spotted.

TAGES, Linn. Pl. 26, Fig. 3.

The Dingy Skipper.

"TAGES, L., *Ta'ges*, a son of Genius, who first taught the Etruscans the art of divi-

nation. Linnæus probably chose this name for one the *Ruricolæ*, because the story is told of Tages being found by a *rustic*, while ploughing." —A.L.

Imago.—Pl. 26, Fig. 3. Dull brown, with grey "undulating bars." A row of pale dots at the hind margin.

Larva—"Pale green, two yellow lines on each side, and a row of black spots above each" Duponchel, quoted by Stainton.

Pupa.—"Smooth, without angles, the thoracic segments being swollen and of a dark green colour; the body is tinged with rosy red; it is conical and pointed." —Newman.

Food Plant.—Birds foot trefoil (*Lotus corniculatus*.)

Times of Appearance.—The Butterfly emerges in May, and it continues on the wing till June is well in. The eggs are laid on the food, and as soon as the larva appears it conceals itself by drawing the leaves together. In the South of England, a second brood emerges in August or September, and the larva lives over the winter; but there is but one brood further North, and it passes that season in the pupa state.

Habitat.—Common all over England and Scotland, except in the Northern parts. It is to be found on dry banks, railway sides, lanes, &c. It occurs all over Europe, except the Polar regions, Northern and Western Asia, and Asia Minor.

Variation.—I have never seen a well-marked aberration of this species. The grey markings on the wings are sometimes more clearly defined than on others. Two forms are named, viz. — *Unicolor*, Frr., which, as its name implies is unicolourous on the upper side. This form occurs in Greece and Western Asia. The other is called *Cervantes*, Graef. It is larger and obscurely marked, and is found in Andalusia.

THE YOUNG NATURALIST.

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The YOUNG NATURALIST :

A Penny Weekly Magazine of Natural History.

No. 101.

OCTOBER 15TH, 1881.

VOL. 2.

MARIA SIBILLA MERIAN.

WE have, on one or two occasions, been asked to give brief biographical notices of persons who have taken an interest in the pursuit and study of natural history, so we begin by a short memorandum of the above-named lady. We do not select her because we can find no worthier personage in our own country. We might even in our own town find men still living who have devoted a life most assiduously to the love of nature, and whose career is well worth chronicling in the pages of history; but we select Madame Merian because we believe she was one of the first ladies to entertain a practical taste for the objects of nature, and one of our strongest desires is to encourage a like taste among the present young members of her sex.

She was born at Frankford in the year 1647. Her ancestors had for some generations been distinguished in works of art. Her father excelled in aquafortis engraving, and produced many volumes illustrated with beautiful plates. His daughter inherited the same tastes, and very soon excelled in drawing and painting. She was indebted to her elder brother, and after her father's death to

a stepfather, for tuition, the latter placing her under a master where she seems to have excelled in miniature portrait painting. She also devoted much of her time to painting flowers and insects, and soon began to show a decided preference for this kind of work, collecting and preserving specimens for that purpose.

At eighteen she was married to a John Andrew Graf, of Nuremburg. His conduct appears, however, to have been of a questionable character, and they separated soon after, she preserving her maiden name. Besides painting with the pencil she painted with the needle, executing pieces of embroidery which were greatly admired. Her zeal in painting insects was her highest joy, and she devoted herself to it with a willing heart and an able hand. She again rejoined her husband, and in 1684 returned to Frankford. They did not stay together long, for she and her two daughters left him in order to join a religious sect. The love of nature seems, however, to have been greater than her devotion to the sect, for she lost no opportunity of visiting any collections of note within easy reach. She visited the Amsterdam museums, and was there

struck by the grandeur of the rich South American butterflies. She determined to go to Guiana: and went in 1699, taking with her one of her daughters, "It was a kind of phenomenon," as Reaumur says, "to see a lady actuated by a love for insects so truly heroic as to induce her to traverse the seas for the purpose of painting and describing them." The results of this journey she published to the world in a costly volume illustrated by sixty beautiful plates executed by her own hands of the transformation of tropical insects. This was published in 1705, under the title "*Metamorphosis Insectorum Surinamensium*." In order to make the work more complete, she sent her eldest daughter a second time to America, where she collected much additional information, and made many additional drawings. These Madame Merian was preparing for publication when she was taken ill, and died on the 13th of January, 1717. Two years after, the work was re-published by her youngest daughter, with twelve additional plates.

Although Madame Merian's work contained very many inaccuracies both in text and plates, yet it was looked upon as the finest work of the time. She was the first to publish the fact that the gigantic spiders of tropical America were in the habit of catching birds; this for a long time was disputed, until it has recently been verified by Mr. Bates with his own eyes.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY Beaumont Park, Huddersfield.

"T.W.K., Camberwell."—We do not think that any "practical joke" has been played on your nephew. The green markings on the hind wings of *P. rapæ* you send we believe are quite natural, and due to the bursting of colour cells. We have seen similar markings in *P. brassica*; one in Mr. C. S. Gregson's collection, and another in the possession of a young collector at Huddersfield. We have also noticed the same effect in species of *Callidryas* from abroad which had been caught by natives, and could not have been tampered with as you suggest. The others are foreign. Three of them belong to the genus *Plusia*, one a *Notodonta*, and two geometers.

NOTES, CAPTURES, &c.

MIGRATION OF BIRDS ON THE EAST COAST.—On Monday, the 3rd inst., whilst shooting on Dovercourt shore, I saw several hooded crows coming off the sea, and others again on the 5th inst. Mr. F. Kerry informs me this is eight days earlier than he observed them last year. On the 5th inst. I also saw three fieldfares and seven redwings.—C. A. MARRIOTT, Phoenix Hotel, Dovercourt.

LESSER BLACKBACKED GULL.—On October 3rd, a fine specimen of the Lesser Black-backed Gull in mature plumage was shot by Mr. Charles Marriott on the Dovercourt beach. This specimen is unique in the colouring of its legs, one leg and foot being a bright yellow, whilst the other is of a pale fresh colour. Can anyone suggest a reason for it? Is it likely to be a hybrid between the greater and the lesser blackbacked gull?

CAPTURES NEAR WICKHAM MARKET, SUFFOLK.—July 7th.—*Probooscidalis*, *Verticalis*, *Urticalis*.

July 8th.—*Hyperanthus*, larvæ of *Antiqua*. *Thymiararia*, *H. Urticæ*.

July 9th.—*Janira*, *Thymiararia*, *amataria*,

L. marginata, *Montanata*, *Typica*, *angur*,
Pronuba.

July 11th.—*W. album*, *Hyperanthus*.

July 12th.—*W. album*, *Hyperanthus*, *Sylvanus*, *Tithonus*.

July 13th.—*Sambucata*.

July 14th.—*Thymiaria*.

July 15th.—*Chrysis*, *Margaritaria*.

July 16th.—*Complanula*, *Potatoria*, *Succenturiata*.

July 18th.—*Auriflua*.

July 19th.—*Auriflua*, *Elinguaria*, *Sambucata*.

July 20th.—*Polychloros*.

July 21st.—*Io*, *Pectinitaria*.

July 25th.—*Polychloros*.

July 27th.—*Polychloros*, *Atalanta*.

August 2nd.—*Polychloros*, *Agestis*.

August 8th.—*Io*.

August 13th.—*Agestis*, *Megaera*, *Elinguaria*.

—GEORGE A. HARKER, 28, Brooke Road,
Blundellsands, Liverpool.

CONTRIBUTIONS TOWARDS THE FAUNA OF PLYMOUTH.

By MR. G. C. BIGNELL, M.E.S.

(Reprinted by permission of the author from the Transactions of the Plymouth Institution and Devon and Cornwall Natural History Society, 1881.)

HYMENOPTERA, ICHNEUMONIDÆ.

Arranged according to the Rev. T. A. Marshall's Catalogue, published by the Entomological Society of London, 1872.

PART I.

(Continued from page 343.)

PEZOMAHUS.—

zonatus. Bred from Spider's eggs (*agelena brunnea*), taken at Cann Wood.

procuratorius. This is a new British species. I bred it last year (1880) from a larva, feeding on oak in Cann Wood.

rufulus.

HENICOSPILUS.—

ramidulus.

OPHION.—

luteum.

minutus. This is a new British species: captured at Laira.

(To be continued.)

BRITISH BUTTERFLIES.

By J. E. ROBSON; with figures from life by
S. L. MOSLEY.

(Assisted by Contributors to the Y.N.)

PAMPHILA, Fabr. }
HESPERIA, Cur. }

"HESPERIA, Cur., *Hesperia*, an ancient name for Italy. Cf. Virg. *Æn.* I. 530."—A.L.

I do not know the derivation of the Fabrician name, but there was an Egyptian lady called Pamphila, living in the time of Nero, who wrote several historical works in Greek.

PAMPHILA is a large genus, considerably over 300 species having been described. The colour is generally fulvous, with brown or orange markings. They sit, when at rest, with only the forewings elevated. The following arrangement is according to Doubleday, but it is right to say that recent writers do not place our five species in the same genus. Dr. Standinger has *Paniscus* in the genus *CARTEROCEPHALUS*, Ld. Kirby, places *Linea* and *Actæon* in the genus *THYMELICUS*, Hub., and *Paniscus* in *HETEROPTERUS*, Durn, for which *CARTEROCEPHALUS* Ld. is a synonym.

The British species may be thus known.
I.—Dull dark brown:

A with bright yellow spots, *H. Paniscus*.

B „ indistinct markings, *H. Actæon*.

II.—Rich fulvous:

A no markings. *H. Linea*.

B Distinctly paler markings.

a underside indistinctly spotted. *H.*

Sylvanus.

b underside with distinct white spots.

H. Comma.

The male has generally a black or dark streak across the wing.

PANISCUS, Pl. 26, Fig. 4.

Chequered Skipper.

"PANISCUS, F., *Paniscus*, diminutive of Pan, the god of shepherds."—A.L.

Imago.—Pl. 26, fig. 4. Very dark brown, with a number of bright yellow brown spots.

Larva.—"Brown, with two yellow dorsal stripes; head black; second segment edged with yellow." Duponchel quoted by Stainton.

Pupa.—I know of no description.

Food Plant.—Plantain (*Plantago major*). It rolls up the leaves and changes to a pupa inside.

Times of Appearance.—The butterfly is on the wing in June, and I can speak with no certainty of its further stages. This larva is said to occur in September, but whether it is full fed then, or feeds up in the spring, I cannot say.

Habitat.—A very local species in England. The following counties are taken from Newman:—Hampshire, Huntingdon, Lincolnshire, Northamptonshire, Nottinghamshire, Oxfordshire, Suffolk. It does not occur in either Ireland or Scotland. In Europe its range is rather restricted. It occurs in Central Europe, in Russia, extending to Finland and Siberia.

Variation.—Except a little difference in the size of the paler markings, I have seen or heard of no departures from the type.

ACTÆON, Pl. 28, Fig. 3.

The Lulworth Skipper.

"ACTÆON, Esp., *Actæon*, a hunter, who saw Diana bathing, was changed to a stag, and pulled down by his own hounds."—A.L.

Imago.—Pl. 28, Fig. 3. Dusky brown, with a narrow dark hind margin. The male has a black line from the centre of the wing, nearly to the base of the inner margin. The female has a curved row of rather pale fulvous spots.

Larva.—"Pale green, with darker dorsal line, edged with a yellowish line on each side, and enclosing a paler central line.

Along the side is a narrow one above, and a broad one beneath; the two yellow lines on the back are prolonged as far as the middle of the green head, and run to the end of the rounded anal shield, which is narrowly edged with yellow. Towards the end of June, the larva spins together two leaves with a few white silk threads, and becomes a slender, agile pupa, the peculiarities of which I had no opportunities of observing."—Prof. Zeller, in Ent. Intelligencer, Vol. x., p. 163, 4.

Food Plant.—Wood small reed (*Calamagrestis epigejos*). "It feeds in the evening and at night, resting during the day extended on the flat surface of a leaf."—Prof. Zeller, as above. I have a note that it sometimes feeds on *Arundo fragmites*; but I have omitted the reference, and cannot find it.

Times of Appearance.—The Butterfly appears on the wing in July and August. I expect the larva hibernates small, feeding up in Spring. It is full fed towards the end of June, and remains about a fortnight in pupa.

Habitat.—In this country *Actæon* has a very limited range, being confined to two or three counties, viz., Devonshire, Dorsetshire, and Warwickshire. Its English name is derived from Lulworth Cove, in Dorsetshire, where it was first taken. Abroad it has a wide range, being found in Central and Southern Europe, in Asia Minor, and also in the Mauritius and Canaries.

Variation.—I have not heard of either an abnormal or local variety of this species.

LINEA, Pl. 28, Fig. 2.

Small Skipper.

"LINEA, W.V., *Li'nea*, on account of the line on the fore wings."—A.L.

Imago.—Pl. 28, fig. 2. Rich fulvons, with no markings, except a slender black line on the fore wings of the male.



<i>Hesperia</i>	<i>comma</i>	1
"	<i>linea</i>	2
"	<i>Actæon</i>	3



Larva.—Green, with pale lines; head green.

Pupa.—"Green, a pointed head case, and very sharply tapered towards the tail."

Food Plants.—Various grasses.

Times of Appearance.—The butterfly appears on the wing in July; the egg is laid on the food plant, and the larva hibernates quite small, feeding up in the spring, and assuming the pupa state in June.

Habitat.—Generally distributed in England, but is most abundant in the south. I am not aware that it has occurred in either Durham or Northumberland, nor that it has been taken in Scotland. Mr. Birchall found it in more than one locality in Ireland, where it probably only needs to be looked for. It is widely spread over Europe, reaching Sweden. It is found in Asia Minor, Persia, &c., and also in North Africa.

Variation.—Exceedingly constant to type. Pale varieties occur, but rarely. A male of the pale type is figured in Mosley's "Illustrations," and Mr. Bond has the same form in both sexes, as have other collectors. It should be observed that there is no change in the markings in these specimens.

Note.—This species was first described by Hufnagel in 1766 by the name of *Thaumas*, which name should be adopted.

SYLVANUS, Pl. 26, fig. 5.

Orange Skipper.

"SYLVANUS, F., *Sylva'nus*, found in woods."

—A.L.

Imago.—Pl. 26, fig. 5. Rich fulvous, darker at the hind margin. The darker shade sometimes spreads further over the wing, leaving fulvous spots as in in *Comma*. A dark line across the fore wing in the male. Underside paler, with indistinct pale spots.

Larva.—"Dull green, with darker dorsal line dotted with black; head brown;

beneath, on the tenth and eleventh segments, are snow-white transverse spots."—Zeller quoted by Stainton.

Pupa.—I know of no description.

Food Plant.—Grasses. Meadow soft grass (*Holcus lanatus*).

Times of Appearance.—This butterfly appears to be double brooded. I have no knowledge of it myself, but most of writers give May and August as the times of its appearance on the wing. Owen Wilson says June, July and August, and it is so common a species that there should not be a doubt about it, yet Mr. Wilson's is the latest publication on the subject. What is the experience of others?

Habitat.—Widely distributed, and common in England, but scarcer in the north. I have never met with it in my county, Durham, though I have a specimen taken in Crimdon Dene. Castle Eden Dene and the neighbourhood of Darlington are also quoted. In Northumberland I believe it is unknown. It occurs both in Scotland and Ireland. It is found all over Europe except the extreme north, and in Western and Northern Asia, &c.

Variation.—This butterfly varies a little in hue, and in the extent or clearness of the paler markings, but is still very constant to the type. A fine variety is figured in Mosley's "Illustrations." It has the wings orange yellow, paler towards the hind margin, which is dark brown; there is also a dark brown spot on the costa near the tip.

COMMA, Pl. 28, fig. 1.

The Silver Spotted Skipper.

"COMMA, L., *Com ma*, on account of the mark on the fore wings."—A.L.

Imago.—Pl. 28, fig. 1. Fulvous very much clouded with greenish brown towards the hind margin. A wavy row of obscured paler spots on both wings. A black streak on the fore wings of the male. Underside

greenish, hind wing all green, both with several squarish white spots similar to those above.

Larva.—"Dull green, mixed with reddish; second segment white; two white spots near the bottom of the ninth and tenth segments."--Duponchel, quoted by Stainton. Newman, describing Hubner's figure, says the white spots are on the tenth and eleventh segments, which is probably correct, as Sylvanus has them on the tenth and eleventh. He also says it has a black head.

Pupa.—I know of no description.

Food Plants.—Bird's foot trefoil (*Lotus corniculatus*) and other papilionaceous plants.

Times of Appearance.—The butterfly emerges in July and continues on the wing for more than a month. All the authorities I am able to consult speak of the larva as appearing in May or June, but whether that means that the winter is passed in the egg I cannot say. I would be rather inclined to think it hatches in the autumn, and the larva hibernates when small.

Habitat.—It is generally found on chalk in the southern and eastern counties of England. York and Scarbro are quoted as its most northern localities. I am not aware that it occurs either in Scotland or Ireland. It is found all over Europe, in Northern and Western Asia.

Variation.—Like all the Skippers remarkably constant to the type. One form is named, *Catena*, Strg., it has the hind wings greenish. Two fine aberrations are figured in Mosley's Illustrations. One from the collection of the late Alfred Owen, has the usual pale spots nearly white. The other, which was taken at Newmarket, and is in the rich collection of Mr. Bond, has the spots and markings of the usual hue, but the other portions of the wing, which are generally darker, are all pale greenish drab.

THE EYEBRIGHT,

(*Euphrasia Officinalis*.)

By Mr. J. P. SOUTTER, Bishop Auckland.

The cold bleak winds, frosty nights, and drenching rains are making sad havoc with the flowers; only a few of the summer beauties are seen to linger in the lap of chill October. But in old poor pastures, and in open grassy moors, especially on clayey soil, the little eyebright may yet be found in plenty; and although it has been blooming freely all the summer, it has still a few of the topmost flowers to expand to the warm sunshine of a bright autumn day which often follows the frosty night, which kills the tenderer plants and causes the leaves to drop noiselessly from the trees. At this season, when flowers are so scarce, there is little danger of mistaking the eyebright for there is nothing else like it in bloom. From a slender white root a single, black, wiry stem ascends about six or nine inches in length, often very much branched at the base, giving it a pyramidal outline, and bearing a great profusion of white purple-veined blossoms. In stature it is exceedingly variable, in open exposed places scarcely rising an inch above the surface, producing perhaps a solitary flower, whilst in shade or amongst long grass it becomes very slender and scarcely if at all branched, with few flowers, when it is *E. gracilis* of botanists. But it is most commonly found in the much branched state like a miniature fir-tree, and bearing often from fifty to eighty flowers. In all circumstances it preserves it rigid, erect habit of growth. It belongs to the natural order SCROPHULARIACEÆ, which includes the foxglove and snapdragon, and its flowers have the characters of the order. The calyx is four cleft, the corolla is tabular and two-lipped, the upper lip being two-lobed and the lower lip three-lobed. The stamens are four, in two pairs, two long and two short, they lie along the upper part of the

corolla, the slender style coming through between and overtopping them. The anthers, especially the two lower ones, are furnished with a peculiar appendage—a sort of spur which projects downwards into the tube of the corolla—so that an insect visiting the flower in endeavouring to reach the nectar must necessarily brush against the anther and dislodge the pollen, which dusting its body is thus carried to another blossom. As this plant is an annual, it is entirely dependent upon the production of seeds for the perpetuation of the species, and this is greatly favoured by the intercrossing of flowers producing a more robust progeny. A similar illustration of the wonderful correlation of plants and insects is furnished by a closely allied common plant, the red *Bartsia* (*Bartsia odontites*). This is also an autumn bloomer, and is often very abundant in poor grass and cornfields, preferring a stiff clay soil which is undrained and thus retentive of moisture. It is frequently met with about farm-yards and roadsides, particularly where the soil has been recently disturbed. It closely resembles the eyebright in general habitat although taller and stouter in all its parts, and the ends of the branches curve outwards in a singularly graceful Prince of Wales's feather fashion. Its flowers have the tube of the corolla longer than the eyebright, and the nectar can only be efficiently reached by humblebees, whilst the four anthers are so interlocked by projecting hairs that each visit of a bee must dislocate the whole, bringing a shower over the insect's body, and thus ensuring the dispersion of the pollen. Still close and minute observers have stated that this plant is not yet fully adapted to surrounding circumstances, as bees have been seen to insert their proboscis above the stamens, and thus to rob the nectar without aiding to fertilize the flower. But, notwithstanding the high character of bees for ingenuity and industry, they are prone to

such nefarious pranks, for they have been repeatedly observed to gnaw a hole at the base of the corolla of common red clover and thus obtain easy and surreptitious access to the nectar instead of sucking it through the tube in a legitimate manner. To return to our eyebright, its common English name betokens the high repute in which it was formerly held for an eyewash and which it still retains in popular practice, for few of our native plants have so widespread a reputation in rustic medicine. An old legend has it that the linnet used it to clear its eyesight, hence a local name for it is "bonnie burd eyne." Although the name of eyebright has been appropriated by certain poets, and as a popular name in some districts to the brilliant blue flowers of the germander speedwell (*Veronica chamaedrys*). This is the true euphrasy of Milton, where in the XI. Book of *Paradise Lost*, he makes the angel Michael with wondrous potency purge the eyes of Adam.

"But to nobler sights,
Michael from Adam's eyes the film removed,
Which that false fruit—that promised clearer sight
Had bred; then purged with euphrasy and rue
The visual nerve, for he had much to see;
And from the well of life three drops instilled;
So deep the power of these ingredients pierced,
Even to the inmost seat of mental sight,
That Adam, now enforced to close his eyes,
Sinks down, and all his spirits become entranced."

The name *Euphrasia* is a corruption of *Euphrosyne*, the goddess of mirth, for which see Milton's *L'Allegro*. By some this is supposed to refer to the gaiety or beauty of its flowers; by others to its clearing or purifying powers, thus dispelling the morbid cures of melancholy. But however pleasing this humble little wild blossom may be to the ardent botanist or enthusiastic admirer of nature's loveliness, it does not find much favour with the farmer, for it is shrewdly suspected of being partially parasitical upon the roots of grasses and hence injurious to the crop. It is often gregarious, and may be seen forming dense compact patches in old pastures, but it is rarely if ever seen on rich soils or highly cultivated tracts.

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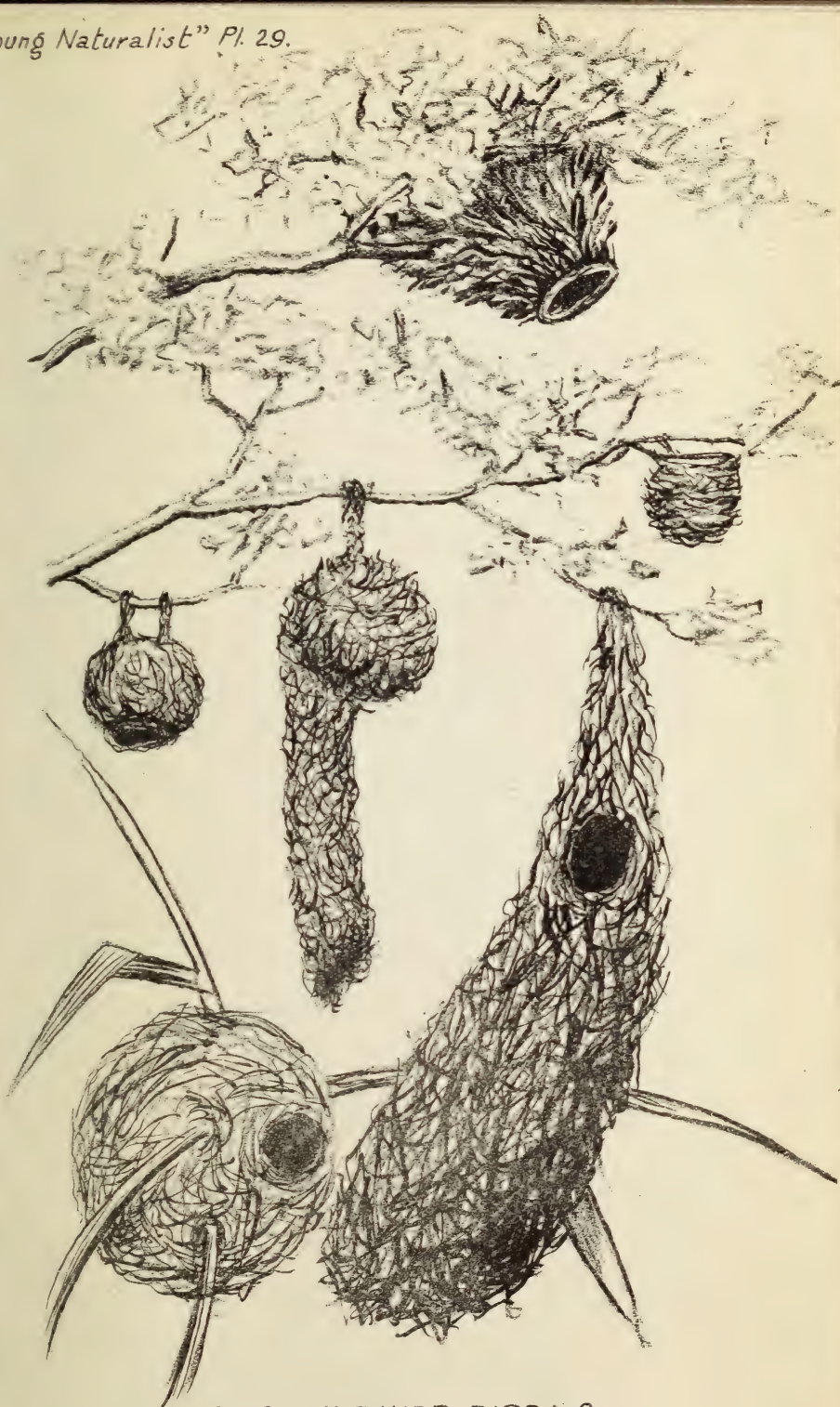
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NESTS OF WEAVER BIRDS, &c.







The YOUNG NATURALIST :

A Penny Weekly Magazine of Natural History.

No. 102.

OCTOBER 22ND, 1881.

VOL. 2.

CURIOUS BIRDS' NESTS.

ON plates 27 and 29 we presented to our readers several forms of the homes of our feathered friends. Plate 27 represents the "bower" of the Bower bird. This remarkable bird is a native of Australia. There are several species, but the one figured has the male of a very dark glossy purple, almost black, while the female is drab or greenish, barred and marked with darker colour. The bower is formed by first making a flat platform of slender twigs, and then inserting others with their thick ends into it, in two rows, meeting over the top, in the form shown in the plate. Both entrances to this bower are decorated with bits of ribbon, buttons, shells, or any other shining material the bird can get hold of. This is not a true nest, in fact serves no purpose of a nest, but is used entirely as a place of amusement, the birds—not only those that have built it, but others of the same species—running through, chasing each other, and sporting all day long. Very few, if any other, examples occur of animals erecting a structure simply for amusement.

The other plate (29) represents several forms of pensile nests, chiefly of

that family of birds called Weaver birds. These remarkable structures are truly works of art, and are designed by the little architects in all probability, in order that the offspring may escape the dangers of the foes to which they are exposed, such as snakes, &c. In many instances they are suspended on slender twigs overhanging water, and so difficult to get at that we seldom see them in collections, except one or two of the commonest kinds like that in the centre of the plate, belonging to the Bava Sparrow. The bottle-shaped nest of the Mahali Weaver Bird represented at the top of the plate is very curious. It is composed of blades of grass, each with the thick end protruding from the outside, giving it quite a hedgehog appearance. The long slender nest is that of the Crested Casique. It is hung by a small portion at the top, and swings to-and fro with every breath of air. Many of the Orioles build beautiful pensile nests: that of the Baltimore Oriole is represented on the right hand side of the plate, suspended from two slender branches. Many other beautiful nests might be cited, but if our young readers would visit the museums they will see many for themselves; and even

our own woods produce many that are beautiful, the Golden Crested Wrens for instance—but these will all be treated of and figured in our treatise on British Birds.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY Beaumont Park, Huddersfield.

NOTES, CAPTURES, &c.

CLOANTHA SOLIDAGINIS AT HARTLEPOOL.
—Among a lot of insects brought to me to name on Saturday, by Mr. Alfred Woods, I was surprised to find a fair specimen of *Cloantha Solidaginis*, which he had taken on a rail, near the Cemetery, Hartlepool. The species is quite new to the locality, and its occurrence is a matter of considerable surprise to me. There was also a curious variety of one of the carpets, *M. Subtristata*, taken on the railway side.—JOHN E. ROBSON, West Hartlepool.

LEPAS ANATIFERA.—A log of timber has washed ashore here, completely covered with the Goose Barnicle (*Lepas anatifera*.) We are so completely out of the currents from the main ocean here that I have not known this species occur here before, nor so far as I could learn have any of the fishermen. I have secured a number of shells, which I shall be glad to send any one on receipt of small tin box and postage.—JOHN E. ROBSON, West Hartlepool.

ANECDOTE OF A CHAFFINCH.—Conversing a few days since to a friend who has recently arrived home from America, he told me an interesting story of a pet chaffinch. It appears that during the disastrous cyclone which did so much damage to shipping in the Bay of Biscay about the end of last October (1880) large flocks of birds—inclu-

ding thrushes, blackbirds, linnets and chaffinches—settled on the rigging of my friend's ship when about half way across the bay. Several of these birds were caught, but all managed to escape except one chaffinch which, as the sailors believed him to have been blown from the Irish coast, they christened "Paddy." Paddy soon made himself at home with the sailors and became very tame. The "skipper" had two canaries with one of which Paddy became very familiar, allowing him in the day-time to hop about his (Paddy's) cage as he pleased, but driving him out at night when he evidently wanted all the cage to himself. He speedily picked up the notes of his favourite and sang with such vehemence as soon as day broke, that there was no sleeping anywhere near him. During this time he never seemed to regard the other canary but as an intruder, driving him away from his cage whenever he came near; but his companion either being given away on their arrival out, or dying (I forget which), Paddy moped for a few days, then "made up" to his old enemy and speedily became great friends. Paddy withstood a stormy passage round the Horn, and the tropical heat of Iquique, and on arriving off Falmouth, on their arrival home, he managed to escape and flew ashore, returning to his cage, however, at night, and not attempting to escape afterwards. This bird, I am informed, is now in Liverpool.—JOHN W. ELLIS, 101, Everton Road, Liverpool, Sept. 30th, 1881.

EXCHANGE.

DUPLICATES: *Nebulosa*, *Lucipara*, *Herbida*, *Thallasina*, *Plecta*, *Festiva*, *Rurea*, and var. *Combusta*. **DESIDERATA:** very numerous. F. ELLIS, 32, Swallow Street, Huddersfield.

Wanted, a specimen of the Old English Black Rat, for stuffing.—S. L. MOSLEY, Beaumont Park, Huddersfield.

NATURAL HISTORY DIARY:

By J. W. CARTER.

September 2nd. Fleabane (*Inula dysenterica*) in flower. Bingley (E.P.P.B.)

September 6th. Took *Noctua glauca* at ragwort flowers, on Blackhills. I had not taken it previously, since 1878, in which year it was common at ragwort. (E.P.P.B.)

September 8th. My brother told me he saw, but what was more satisfactory, he heard a small flock of Fieldfares, whilst walking to Bradford. I know it is above a month before their average time of arrival, but I am very much mistaken if I did not hear the anserine notes of this species, on Blackhills, whilst examining the ragwort, on the 9th instant. (E.P.P.B.)

A specimen of *Aplecta occulta* taken at sugar, by Mr. Terry. This is the second specimen recorded for the district; the other was taken in August, 1880, in which year it turned up in unusual numbers in Yorkshire, and in places where it had not been observed for a great number of years, although constantly and practically worked. (J.W.C.)

September 9th. My brother was at Great Ormes Head. The only butterflies were *S. megæra* and *semele*, both of which were in the greatest profusion. (E.P.P.B.)

September 10th. *X. ferruginea* and *A. litura* at sugar. *H. protea* at rest on trunks of trees. *O. dilutata* on the wing.

September 11th. Heard Golden-crested Wrens on Cottingly moor plantation. They appear to be in unusual numbers this year. The winter of 1878 and '79 made sad havoc amongst this species. Diminutive as it is, it must possess considerable recuperative powers to appear in such numbers so soon after being decimated. (E.P.P.B.)

September 14th. *N. fulva* out on Baildon Moor (H.T.S.) This species has since been very common, it begins to fly just about sunset.

Martins and Swallows flying about Wilsden. I did not see either species again until the 25th, on which date I saw a solitary Martin. Martins seem to have been content with rearing but one brood this year; it was not uncommon three or four years ago to find their nests containing unfledged young the first week in October. (E.P.P.B.)

September 26th. *M. oxyacanthæ* at sugar. (J. Terry.)

September 28th. *E. cervinaria* emerged from pupæ. (E.P.P.B.)

September 29th. *H. defoliaria* out, at Shipley Glen. (J.F.)

CONTRIBUTIONS TOWARDS
THE FAUNA OF PLYMOUTH.

By MR. G. C. BIGNELL, M.E.S.

(Reprinted by permission of the author from the Transactions of the Plymouth Institution and Devon and Cornwall Natural History Society, 1881.)

HYMENOPTERA, ICHNEUMONIDÆ.

Arranged according to the Rev. T. A. Marshall's Catalogue, published by the Entomological Society of London, 1872.

PART I.

(Continued from page 351.)

SCHIZOLOMA.—

amicta. Bred from *Eupithecia linariata*;
larva taken at Laira on toad-flax.

EXOCHILUM.—

circumflexum.

ANOMALON.—

Xanthopus. Captured at Bickleigh Wood,
29th May, 1878.

ruficorne. Bred from half-grown larva of
odonestis potatoria.

bellicosum.

clandestinum. Bred from *Hemithea thy-*
miaria, 12th July, 1880.

TRICHOMMA.—

enecator.

(To be continued.)

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The YOUNG NATURALIST :

A Penny Weekly Magazine of Natural History.

No. 103.

OCTOBER 29ND, 1881.

VOL. 2.

PAST AND FUTURE.

ANOTHER year has rolled away ; another volume has reached its last number, and the editors must again bow before their readers, apologize for past shortcomings, and make promise of better things for the future. We think that we may venture to say that we have improved in one important matter during the past few months. The printer's errors are now so nearly eliminated from our pages, that we have no longer to blush lest our readers should think that we, who advocate the use of Latin names and scientific words, could not spell even the simplest English.

We have completed the papers on British Butterflies in this volume, and we shall be glad indeed if any of the unsettled questions relating to this group can be solved during the coming season. The double-broodedness of *V. C. album* has been satisfactorily proved—thanks to the able assistance of Mrs. Hutchinson—and the writer has had the pleasure of rearing both broods this year from larvæ she has kindly supplied. It is proposed in the next volume to commence a series of papers on our British Heterocera in a similar style to those already completed on the Rhopalocera,

but we do not intend to take these in strict scientific order, but rather to write on those whose lives we have been enabled to investigate, and with the kind assistance of our readers we hope not to run short of material.

Our papers on British birds, their nests and eggs, as well as their separate publication, has made but slow progress during this volume, but we hope to proceed with it now as rapidly as proper care and full investigation will permit. We are pleased to know that those who are taking the Hand Book consider it the best for the money that has yet been offered for sale. The figures of varieties of eggs have not been attempted before, and we hope when we reach the smaller birds, and are able also to figure the nests, that the work will be found exceedingly useful to egg collectors, and those who desire to study bird life in its earlier stages. Here, too, we rely on our readers' help (which has already been freely rendered) to supply us with the nests we have not yet figured, and especially with birds in the down.

Many of our readers during the past year have expressed a little dissatisfaction with our plates. Those who have them coloured have been better pleased

apparently, but we are free to admit that they have neither been so good as we would have liked nor as they should have been. We propose in the third volume to go back to the plan with which the second volume was begun, viz., one plate every month, and eight pages of letter-press weekly, of which not more than one shall be used for advertisements if we can help it, though we will need to take up a little space occasionally for "At Homes" and similar announcements. The plates we promise shall be as good as we can make them.

The interesting Botanical papers by Mr. J. P. Soutter will be continued from time to time, and we also propose to publish a series of articles on Botany of an introductory character. It is not intended to be a manual of British Plants, or anything so elaborate and ambitious—in fact, the space at our command would not allow us to complete such a manual in any reasonable time. Our idea is merely to give such a plain and simple introduction to the study of botany as will make it more easy for a young student to master the rudiments of the science.

We are exceedingly desirous to have some papers on Coleoptera of a similar character to that on page 134 of vol. i., on the Plunger Beetle (*Dytiscus marginalis*). The "Life History" of very few beetles has been fully written, and we confess our own inability for the task. Can any of our readers help us.

We have the promise of "Life Histories" of some of the *Ichneumonidae*,

and we shall have pleasure in receiving such articles on any species, even on the despised *Diptera*. Why the life of an animal should only be supposed to be interesting if it belongs to an order that is largely collected we do not know. In our opinion all are equally desirable to have known, and if any of our readers are inclined to study the more neglected orders, we shall have pleasure in finding space for their articles.

To those of our readers who are less ambitious we would say, send us your notes and observations as you go along; never mind whether it has been printed before or not. You cannot tell whether it has or not, and if it has, its repetition will do no harm. We cannot tell whether what you have observed is a regular occurrence until it has been noticed over and over again.

In conclusion we would ask our readers to try and increase our circulation for us, that we may be able to improve its character. Our ambition is to add a cover to the weekly number, so that an additional page of readable matter may be given, and the advertisements no longer bound up with the book. This we can only do if the circulation be considerably increased. Kindly help us in this matter also. We shall be pleased to send sample numbers to any address, or to send parcels to any friends who will distribute them.

Since the above was in type, we have been offered a series of papers on the British Ants, from the pen of Mr. G. C. Bignell. These will be commenced in an early number and continued fortnightly.

TO CORRESPONDENTS.

All communications to be sent to J. E. ROBSON, Bellerby Terrace, West Hartlepool; or to S. L. MOSLEY Beaumont Park, Huddersfield.

F. K.—Thanks for your note. The numbering of the pages, not intended for binding, was an error not detected till you point it out; as we are abandoning that issue it will not occur again.

NOTES, CAPTURES, &c.

P. POPULI IN OCTOBER.—On page 75, of the present volume, Mr. H. A. Andrews suggested that Mr. Gregson was in error in stating that *P. populi* emerged in October. On Saturday, the 15th Inst., Mr. A. Woods brought me a living *P. populi* to name, which he had just taken, confirming Mr. Gregson's statement.—JOHN E. ROBSON, West Hartlepool.

V. URTICÆ DOUBLE-BROODED.—On October 1st, I found a batch of larvæ of *V. Urticæ* on a bed of Nettles, at Cold Knuckles, near Foggy Furze. Brought six home, five of which hung up the following day. Four of the perfect insects emerged on the 23rd Inst., one died in pupa, and the remaining larva, a small one, died October 23rd.—A. WOODS, West Hartlepool, October 24th.

EXCHANGE.

I have a few insects to give away to any who will send box, list of Desiderata and stamped label.—R. J. ATTYE, Storrington, Sussex.

Will exchange my Vol. iii. of *Midland Naturalist* (unbound), for Vol. i. of *Young Naturalist*, bound or unbound. Answer in next number of *Young Naturalist*. Each of us to send our respective books by post.—A. DAVIS, High Street, Great Marlow.

I have some broken wings of a very brilliant South American *Morpho*, and shall be glad to send a piece to any microscopist who will send stamped envelope.—S. L. MOSLEY, Beaumont Park, Huddersfield.

CONTRIBUTIONS TOWARDS THE FAUNA OF PLYMOUTH.

BY MR. G. C. BIGNELL, M.E.S.

(Reprinted by permission of the author from the Transactions of the Plymouth Institution and Devon and Cornwall Natural History Society, 1881.)

HYMENOPTERA, ICHNEUMONIDÆ.

Arranged according to the Rev. T. A. Marshall's Catalogue, published by the Entomological Society of London, 1872.

PART I.

(Continued from page 359.)

PANISCUS.—

cephalotes.

testaceus A parasite on *Dicranura vinula*.

tarsatus. This is a new British species, which I bred from *Eupethecia abbreviata*.

CAMPOPLEX.—

miatus.

pugillator. Bred from *Corycia temerata*.

CASINARIA.—

vidua. Bred from *Abrazas grossulariata*.

tenniventris. Bred from *Hemithea thymiaria*.

(To be continued.)

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